**OM-1500-2** 203 442
February 2001

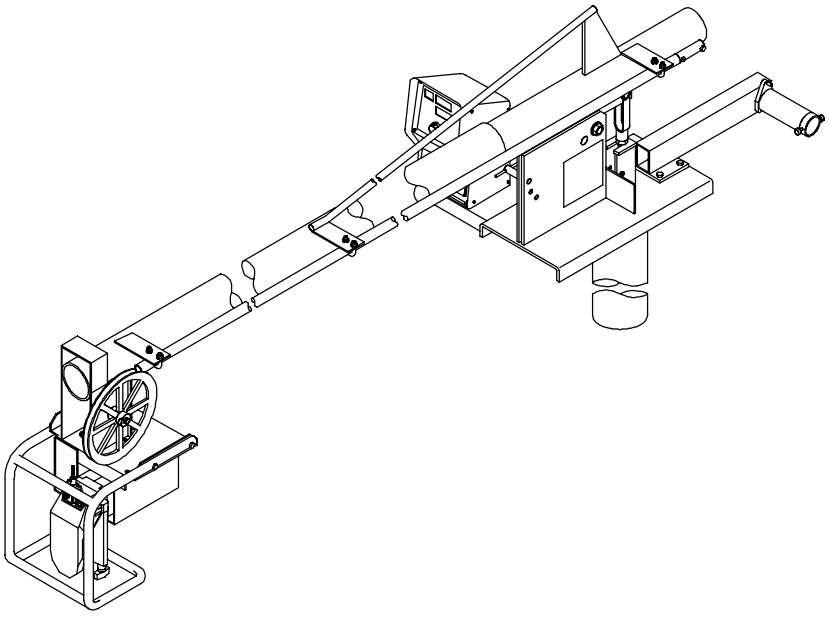
**Processes**

MIG (GMAW) Welding
Flux Cored (FCAW) Welding (Gas-and Self-Shielding)
Submerged (SAW) Welding

**Description**

Wire Feeder
(Use with CV Power Sources)

# 714D Swingarc™



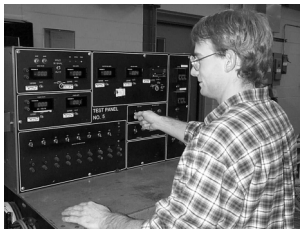
## 714D12 and 714D16

# OWNER'S MANUAL

Visit our website at
**www.MillerWelds.com**

# From Miller to You

*Thank you* and *congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.



That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

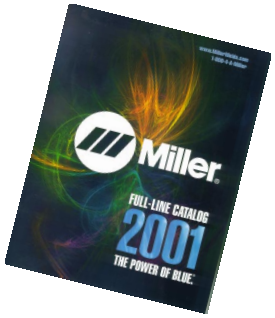
This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite.

ISO 9001 REGISTERED QUALITY SYSTEM

Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001 Quality System Standard.

We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide which exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual catalog sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**




TRUE BLUE® WARRANTY

Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.

*Miller offers a Technical Manual which provides more detailed service and parts information for your unit. To obtain a Technical Manual, contact your local distributor. Your distributor can also supply you with Welding Process Manuals such as SMAW, GTAW, GMAW, and GMAW-P.*

Miller
*The Power of Blue.*

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WARRANTY


## ⚠ WARNING

**This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**

# SECTION 1 – SAFETY PRECAUTIONS - READ BEFORE USING

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## 1-1. Symbol Usage

Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ **Marks a special safety message.**

☞ *Means "Note"; not safety related.*

This group of symbols means Warning! Watch Out! possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

## 1-2. Arc Welding Hazards

▲ **The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-4. Read and follow all Safety Standards.**

▲ **Only qualified persons should install, operate, maintain, and repair this unit.**

▲ **During operation, keep everybody, especially children, away.**

### ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground – check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first – double-check connections.
- Frequently inspect input power cord for damage or bare wiring – replace cord immediately if damaged – bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

### SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

### FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor, use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

## ARC RAYS can burn eyes and skin.

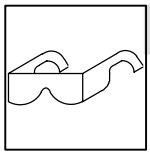
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.

## WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.



## FLYING METAL can injure eyes.

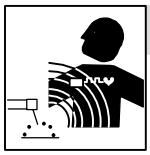
- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

## BUILDUP OF GAS can injure or kill.

- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

## HOT PARTS can cause severe burns.

- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.



## MAGNETIC FIELDS can affect pacemakers.

- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

## NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

## CYLINDERS can explode if damaged.

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder – explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Read and follow instructions on compressed gas cylinders, associated equipment, and CGA publication P-1 listed in Safety Standards.

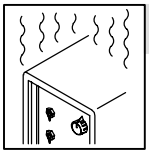
## 1-3. Additional Symbols For Installation, Operation, And Maintenance

### FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring – be sure power supply system is properly sized, rated, and protected to handle this unit.

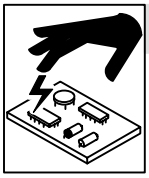
### FALLING UNIT can cause injury.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.



### OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



### STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

### MOVING PARTS can cause injury.

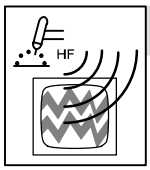
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

### WELDING WIRE can cause injury.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

### MOVING PARTS can cause injury.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.




### H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

### ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

## 1-4. Principal Safety Standards

*Safety in Welding and Cutting*, ANSI Standard Z49.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami FL 33126

*Safety and Health Standards*, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

*Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances*, American Welding Society Standard AWS F4.1, from American Welding Society, 550 N.W. LeJeune Rd, Miami, FL 33126

*National Electrical Code*, NFPA Standard 70, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1, from Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

*Code for Safety in Welding and Cutting*, CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3.

*Safe Practices For Occupation And Educational Eye And Face Protection*, ANSI Standard Z87.1, from American National Standards Institute, 1430 Broadway, New York, NY 10018.

*Cutting And Welding Processes*, NFPA Standard 51B, from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## 1-5. EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields

Welding current, as it flows through welding cables, will cause electromagnetic fields. There has been and still is some concern about such fields. However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: “The body of evidence, in the committee’s judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard.” However, studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep welding power source and cables as far away from operator as practical.
5. Connect work clamp to workpiece as close to the weld as possible.

**About Pacemakers:**

Pacemaker wearers consult your doctor first. If cleared by your doctor, then following the above procedures is recommended.

# SECTION 1 – CONSIGNES DE SECURITE – LIRE AVANT UTILISATION



## 1-1. Signification des symboles

Signifie Mise en garde ! Soyez vigilant ! Cette procédure présente des risques de danger ! Ceux-ci sont identifiés par des symboles adjacents aux directives.

▲ **Identifie un message de sécurité particulier.**

☞ *Signifie NOTA ; n'est pas relatif à la sécurité.*

Ce groupe de symboles signifie Mise en garde ! Soyez vigilant ! Il y a des risques de danger reliés aux CHOCS ÉLECTRIQUES, aux PIÈCES EN MOUVEMENT et aux PIÈCES CHAUDES. Reportez-vous aux symboles et aux directives ci-dessous afin de connaître les mesures à prendre pour éviter tout danger.

## 1-2. Dangers relatifs au soudage à l'arc

▲ **Les symboles présentés ci-après sont utilisés tout au long du présent manuel pour attirer votre attention et identifier les risques de danger. Lorsque vous voyez un symbole, soyez vigilant et suivez les directives mentionnées afin d'éviter tout danger. Les consignes de sécurité présentées ci-après ne font que résumer l'information contenue dans les normes de sécurité énumérées à la section 1-4. Veuillez lire et respecter toutes ces normes de sécurité.**

▲ **L'installation, l'utilisation, l'entretien et les réparations ne doivent être confiés qu'à des personnes qualifiées.**

▲ **Au cours de l'utilisation, tenir toute personne à l'écart et plus particulièrement les enfants.**

### UN CHOC ÉLECTRIQUE peut tuer.

Un simple contact avec des pièces électriques peut provoquer une électrocution ou des blessures graves. L'électrode et le circuit de soudage sont sous tension dès que l'appareil est sur ON. Le circuit d'entrée et les circuits internes de l'appareil sont également sous tension à ce moment-là. En soudage semi-automatique ou automatique, le fil, le dévidoir, le logement des galets d'entraînement et les pièces métalliques en contact avec le fil de soudage sont sous tension. Des matériels mal installés ou mal mis à la terre présentent un danger.

- Ne jamais toucher les pièces électriques sous tension.
- Porter des gants et des vêtements de protection secs ne comportant pas de trous.
- S'isoler de la pièce et de la terre au moyen de tapis ou d'autres moyens isolants suffisamment grands pour empêcher le contact physique éventuel avec la pièce ou la terre.
- Ne pas se servir de source électrique àcourant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique àcourant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique àcourant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer et mettre à la terre correctement cet appareil conformément à son manuel d'utilisation et aux codes nationaux, provinciaux et municipaux.
- Toujours vérifier la terre du cordon d'alimentation – Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Vérifier fréquemment le cordon d'alimentation pour voir s'il n'est pas endommagé ou dénudé – remplacer le cordon immédiatement s'il est endommagé – un câble dénudé peut provoquer une électrocution.
- Mettre l'appareil hors tension quand on ne l'utilise pas.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité quand on travaille en hauteur.
- Maintenir solidement en place tous les panneaux et capots.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.

### Il y a DU COURANT CONTINU IMPORTANT dans les convertisseurs après la suppression de l'alimentation électrique.

- Arrêter les convertisseurs, débrancher le courant électrique, et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie entretien avant de toucher les pièces.

### LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- A l'intérieur, ventiler la zone et/ou utiliser un échappement au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est insuffisante, utiliser un respirateur à alimentation d'air homologué.
- Lire les spécifications de sécurité des matériaux (MSDSs) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et si nécessaire, en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.

## LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

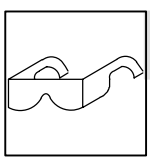
Le rayonnement de l'arc du procédé de soudage génère des rayons visibles et invisibles intenses (ultraviolets et infrarouges) susceptibles de provoquer des brûlures dans les yeux et sur la peau. Des étincelles sont projetées pendant le soudage.

- Porter un casque de soudage muni d'un écran de filtre approprié pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.
- Utiliser des écrans ou des barrières pour protéger des tiers de l'éclair et de l'éblouissement; demander aux autres personnes de ne pas regarder l'arc.
- Porter des vêtements de protection constitué dans une matière durable, résistant au feu (cuir ou laine) et une protection des pieds.

## LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Ne pas souder dans un endroit là où des étincelles peuvent tomber sur des substances inflammables.
- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologués.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les normes de sécurité).
- Brancher le câble sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.



## DES PARTICULES VOLANTES peuvent blesser les yeux.

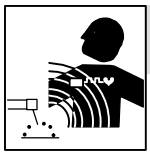
- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.

## LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz protecteur en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.

## DES PIÈCES CHAUDES peuvent provoquer des brûlures graves.

- Ne pas toucher des parties chaudes à mains nues
- Prévoir une période de refroidissement avant d'utiliser le pistolet ou la torche.



## LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.

## LE BRUIT peut affecter l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvés pour les oreilles si le niveau sondre est trop élevé.

## Si des BOUTEILLES sont endommagées, elles pourront exploser.

Des bouteilles de gaz protecteur contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée – risque d'explosion.
- Utiliser seulement des bouteilles de gaz protecteur, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Ne pas tenir la tête en face de la sortie en ouvrant la soupape de la bouteille.
- Maintenir le chapeau de protection sur la soupape, sauf en cas d'utilisation ou de branchement de la bouteille.
- Lire et suivre les instructions concernant les bouteilles de gaz comprimé, les équipements associés et les publications P-1 CGA énumérées dans les normes de sécurité.

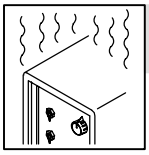
## 1-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance

### Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces infllammables.
- Ne pas installer l'appareil à proximité de produits inflammables
- Ne pas surcharger l'installation électrique – s"assurer que l'alimentation est correctement dimensionné et protégé avant de mettre l'appareil en service.

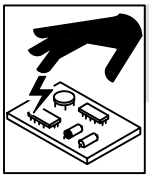
### LA CHUTE DE L'APPAREIL peut blesser.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariot, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un engin d'une capacité appropriée pour soulever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.



### L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement, respecter le cycle opératoire nominal.
- Réduire le courant ou le cycle opératoire avant de recommancer le soudage.
- Ne pas obstruer les passages d'air du poste.



### LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimes.

### DES ORGANES MOBILES peuvent provoquer des blessures.

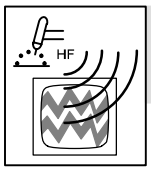
- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

### LES FILS DE SOUDAGE peuvent provoquer des blessures.

- Ne pas appuyer sur la gachette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.

### DES ORGANES MOBILES peuvent provoquer des blessures.

- Rester à l'écart des organes mobiles comme le ventilateur.
- Maintenir fermés et fixement en place les portes, panneaux, recouvrements et dispositifs de protection.




### LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.

- Le rayonnement haute frequence peut provoquer des interférences avec les équipements de radio–navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et et un blindage pour réduire les interférences éventuelles.

### LE SOUDAGE À L'ARC risque de provoquer des interférences.

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

### LES CHAMPS MAGNÉTIQUES peuvent affecter les stimulateurs cardiaques.

- Porteurs de stimulateur cardiaque, restez à distance.
- Les porteurs d'un stimulateur cardiaque doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de gougeage ou de soudage par points.

## 1-4. Principales normes de sécurité

*Safety in Welding and Cutting,* norme ANSI Z49.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

*Safety and Health Sandards,* OSHA 29 CFR 1910, du Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

*Recommended Safe Practice for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances,* norme AWS F4.1, de l'American Welding Society, 550 N.W. Lejeune Rd, Miami FL 33126

*National Electrical Code,* NFPA Standard 70, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

*Safe Handling of Compressed Gases in Cylinders,* CGA Pamphlet P-1, de la Compressed Gas Association, 1235 Jefferson Davis Highway, Suite 501, Arlington, VA 22202.

*Règles de sécurité en soudage, coupage et procédés connexes,* norme CSA W117.2, de l'Association canadienne de normalisation, vente de normes, 178 Rexdale Boulevard, Rexdale (Ontario) Canada M9W 1R3.

*Safe Practices For Occupation And Educational Eye And Face Protection*, norme ANSI Z87.1, de l'American National Standards Institute, 1430 Broadway, New York, NY 10018.

*Cutting and Welding Processes,* norme NFPA 51B, de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

## 1-5. Information sur les champs électromagnétiques

Données sur le soudage électrique et sur les effets, pour l'organisme, des champs magnétiques basse fréquence

Le courant de soudage, pendant son passage dans les câbles de soudage, causera des champs électromagnétiques. Il y a eu et il y a encore un certain souci à propos de tels champs. Cependant, après avoir examiné plus de 500 études qui ont été faites pendant une période de recherche de 17 ans, un comité spécial ruban bleu du National Research Council a conclu: "L'accumulation de preuves, suivant le jugement du comité, n'a pas démontré que l'exposition aux champs magnétiques et champs électriques à haute fréquence représente un risque à la santé humaine". Toutefois, des études sont toujours en cours et les preuves continuent à être examinées. En attendant que les conclusions finales de la recherche soient établies, il vous serait souhaitable de réduire votre exposition aux champs électromagnétiques pendant le soudage ou le coupage.

Afin de réduire les champs électromagnétiques dans l'environnement de travail, respecter les consignes suivantes :

1 Garder les câbles ensembles en les torsadant ou en les attachant avec du ruban adhésif.

2 Mettre tous les câbles du côté opposé de l'opérateur.

3 Ne pas courber pas et ne pas entourer pas les câbles autour de votre corps.

4 Garder le poste de soudage et les câbles le plus loin possible de vous.

5 Relier la pince de masse le plus près possible de la zone de soudure.

**Consignes relatives aux stimulateurs cardiaques :**

Les personnes qui portent un stimulateur cardiaque doivent avant tout consulter leur docteur. Si vous êtes déclaré apte par votre docteur, il est alors recommandé de respecter les consignes ci–dessus.

# SECTION 2 – INTRODUCTION

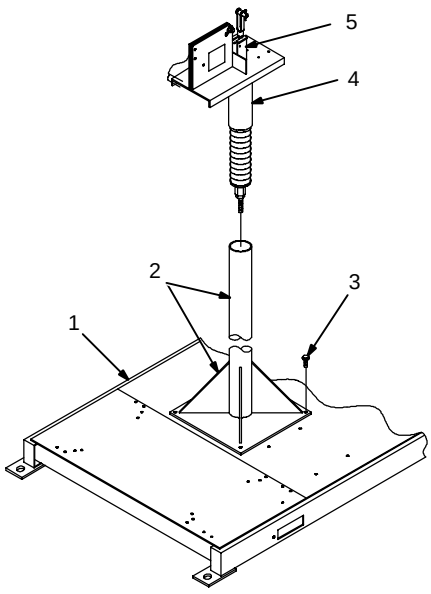
## 2-1. Specifications

| Type of Input Power | Welding Power Source Type | Wire Feed Speed Range | Wire Diameter Range | Welding Circuit Rating | Weight |
|---|---|---|---|---|---|
| 24 Volts AC Single-Phase 10 Amperes 50/60 Hertz | Constant Voltage (CV) DC With 14-Pin And Contactor Control | Standard: 50 To 780 ipm (1.3 To 19.8 mpm)<br><br>Optional High Speed: 92 To 1435 ipm (2.3 To 36.5 mpm) | .023 To 1/8 in (0.6 To 3.2 mm)<br><br>Max Spool Weight: 60 lb (27 kg) | 100 Volts, 750 Amperes, 100% Duty Cycle | 12 ft (3.7 m): 160 lb (73 kg)<br><br>16 ft (4.9 m): 210 lb (95 kg) |

| | 12 ft (3.7 m) Boom | 16 ft (4.9 m) Boom |
|---|---|---|
| Maximum Height With 4 ft (1.2 m) Post | 17 ft (5.2 m) | 21 ft (6.4 m) |
| Vertical Lift Of Boom | Horizontal to 60° Above Horizontal | Horizontal to 60° Above Horizontal |

# SECTION 3 – INSTALLATION

## 3-1. Installing Swivel Into Pipe Post




1 Swingpak Base or CBC Cart

2 Pipe Post With Base

3 Steel Bolt

Secure as shown using as a minimum 1/2 in diameter SAE grade 5 steel bolts.

4 Swivel Assembly

Insert into pipe post. Lubricate swivel.

5 Safety Collar

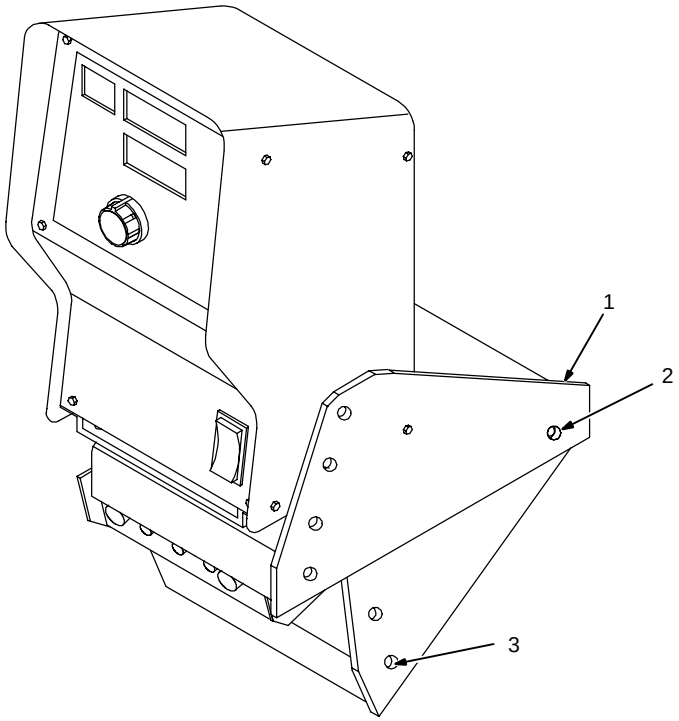
▲ **Do not remove until instructed to.**

Tools Needed:

3/4 in

ST-152 268-B

## 3-2. Adjusting Control Tilt Bracket




1 Tilt Bracket

2 Rear Pivot Screw

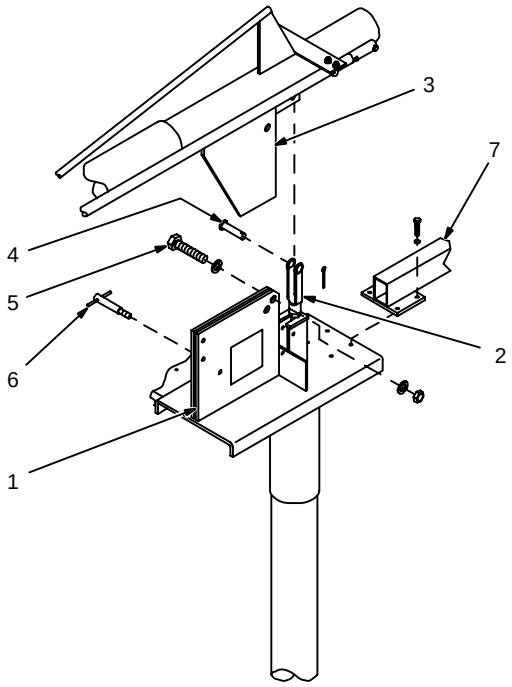
3 Front Screw

Loosen rear pivot screw. Remove front screw. Pivot control downward to desired viewing angle. Replace and tighten front screw. Tighten pivot screw.

802 862

## 3-3. Installing Boom And Reel Support






1 Swivel Plates

2 Yoke

Remove hardware from swivel plates and yoke.

3 Boom

Set boom into swivel as shown.

4 Yoke Pin

Install pin through yoke. Install cotter pin and spread ends.

5 Bolt

Install bolt, tighten hardware, and back bolt off one half turn.

6 Locking Knob

Install locking knob but do not tighten.

7 Reel Support

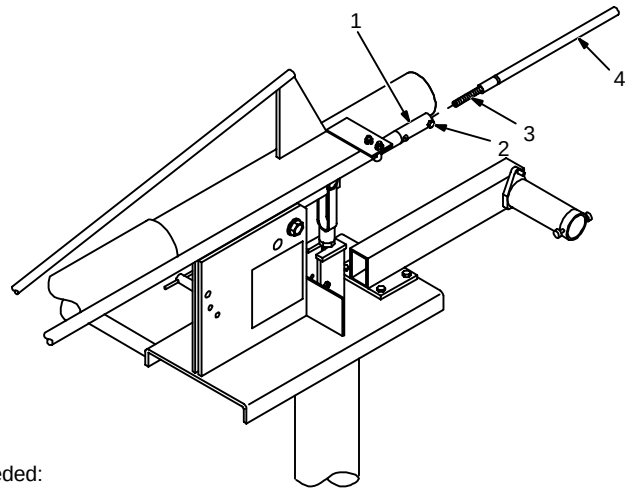
Install reel support.

Tools Needed:

3/8, 3/4 in

ST-142 596-C

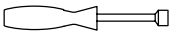
## 3-4. Installing Wire Guide Extension




1 Wire Guide Fitting
2 Bolt
3 Monocoil Liner
4 Wire Guide Extension

Tighten bolt to secure liner in wire guide fitting. Do not overtighten bolt and crush liner.

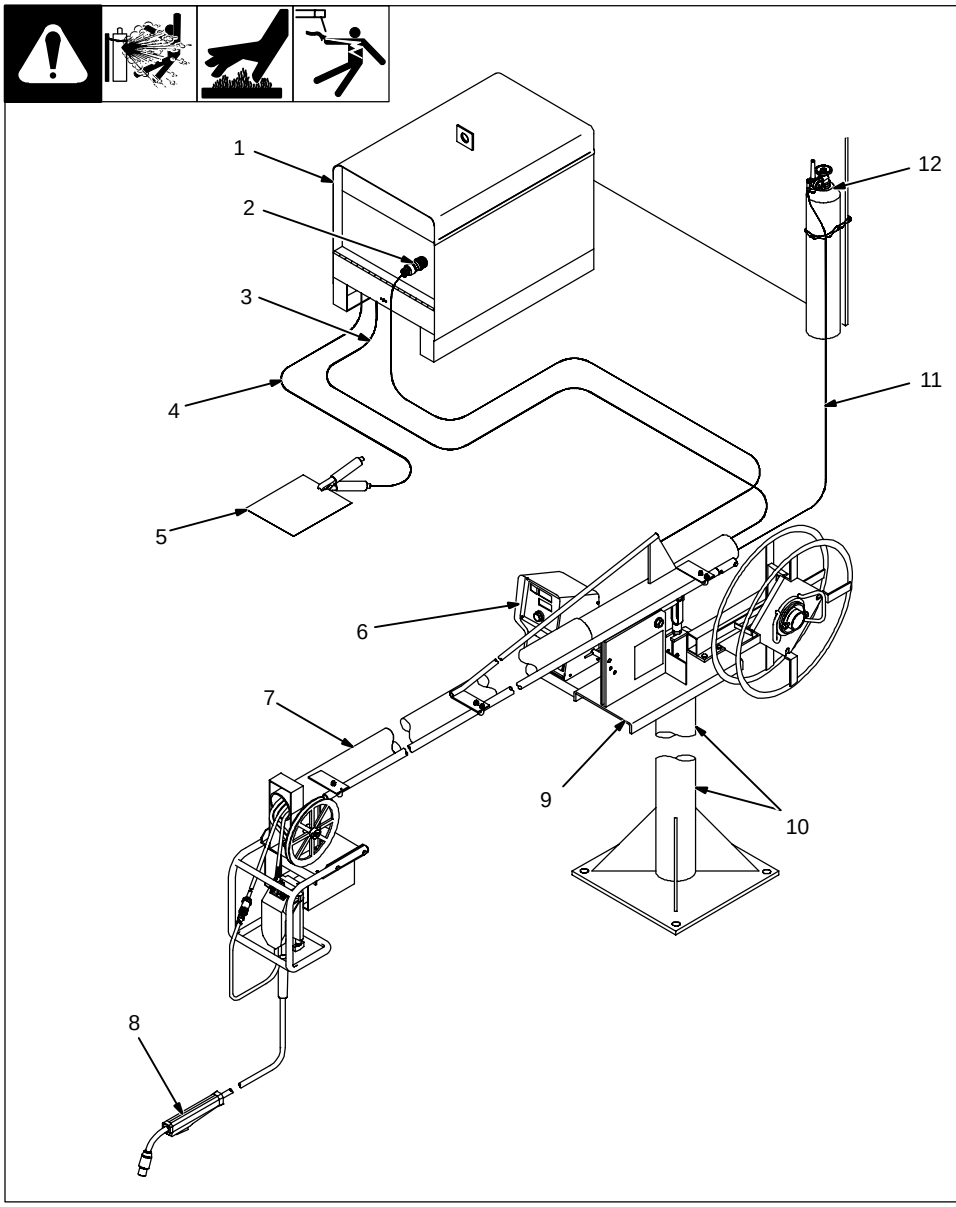
Tools Needed:



3/8 in

ST-152 323

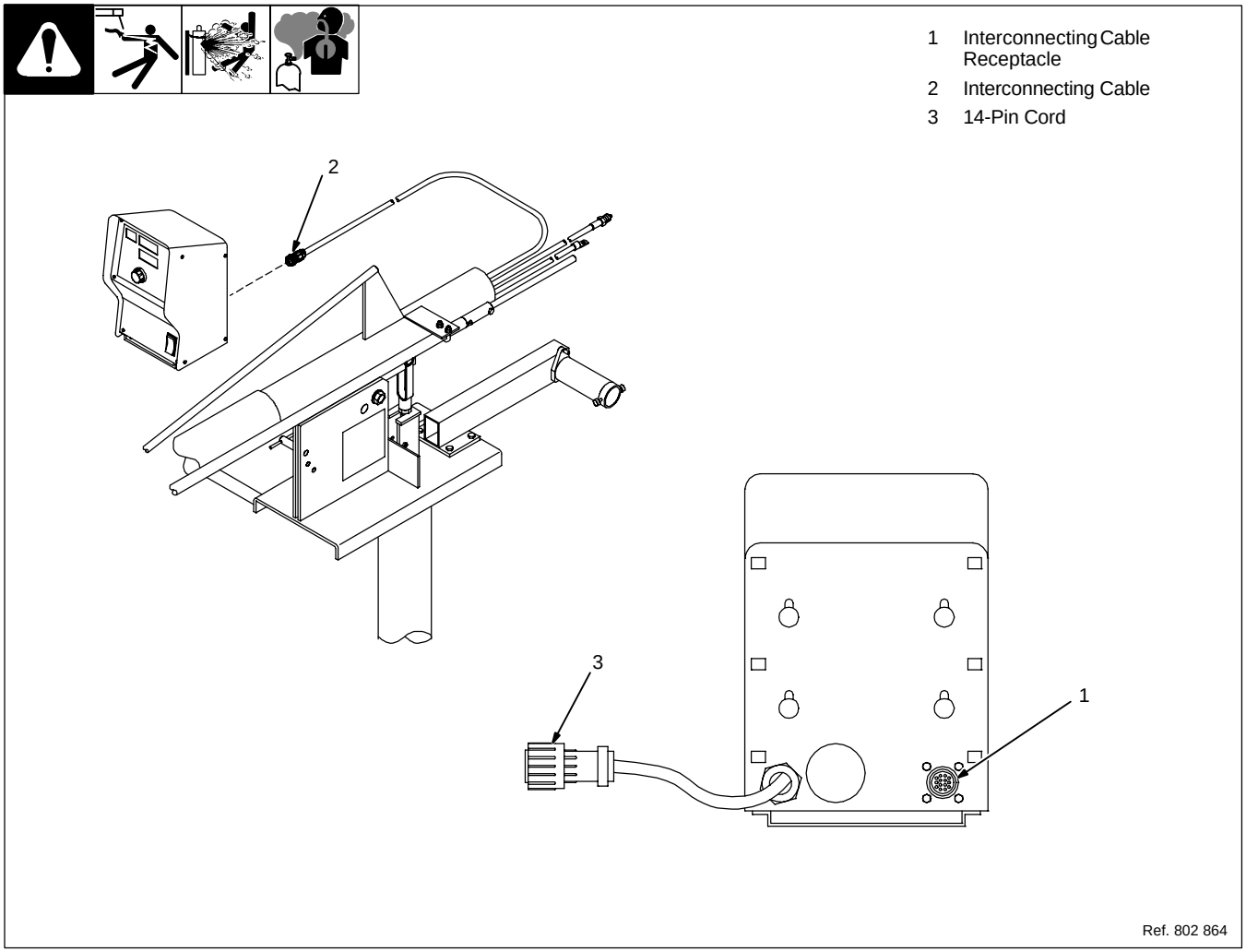
## 3-5. Equipment Connection Diagram



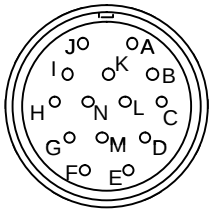

1 Welding Power Source
2 Remote 14 Connection
3 Positive (+) Weld Output Cable
4 Negative (–) Weld Output Cable
5 Workpiece
6 Weld Control
7 Boom
8 Gun
9 Swivel
10 Pipe Post And Base
11 Gas Hose
12 Gas Supply

802 863

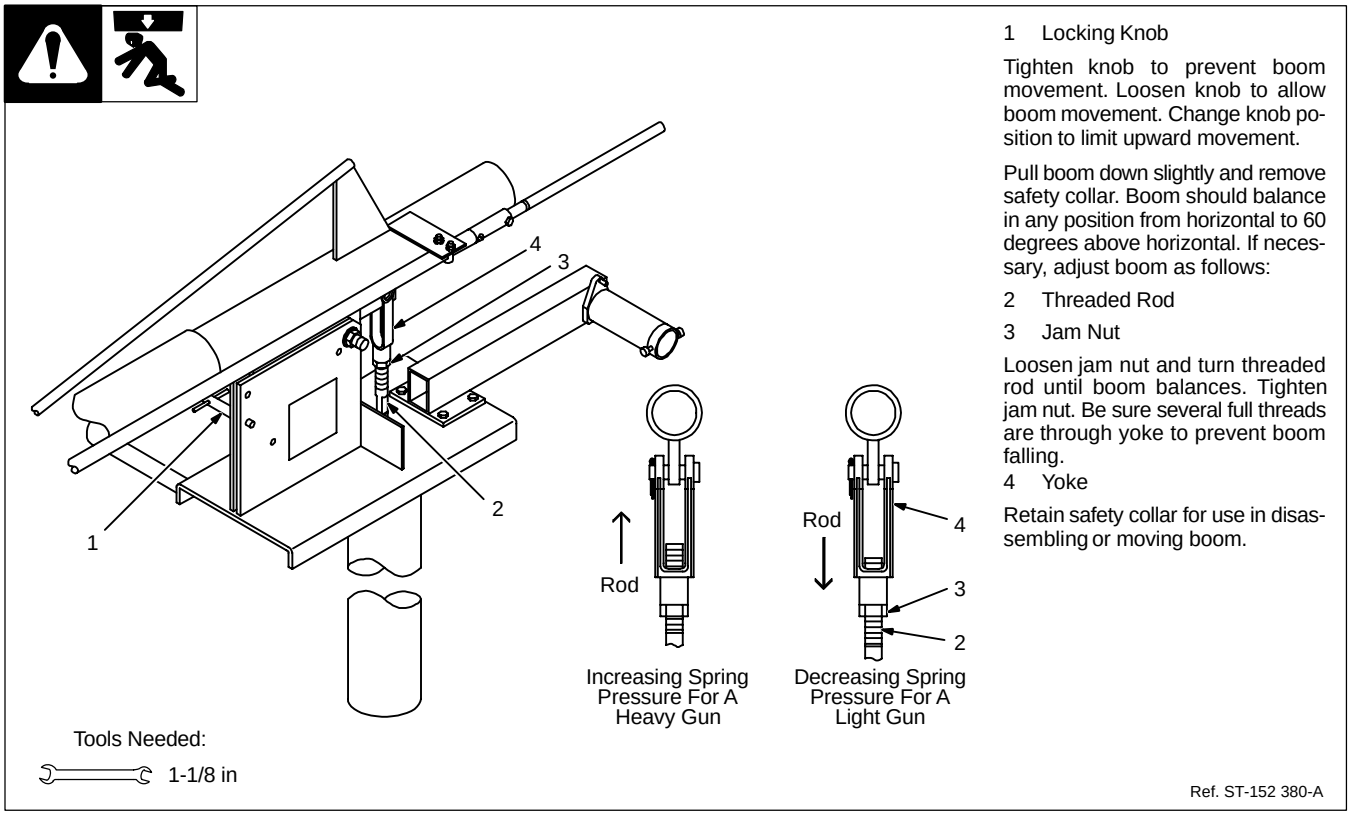
## 3-6. Control Box Connections




## 3-7. 14-Pin Plug Information

| REMOTE 14 | Pin* | Pin Information |
|---|---|---|
|  | A | 24 volts ac with respect to socket G. |
| | B | Contact closure to A completes 24 volts ac contactor control circuit. |
| | G | Circuit common for 24 volts AC circuit. |
| | C | +10 volts dc output to remote control with respect to socket D. |
| | D | Remote control circuit common. |
| | E | 0 to +10 volts dc input command signal from remote control with respect to socket D. |
| | H | Voltage feedback; 0 to +10 volts dc, 1 volt per 10 arc volts. |
| | F | Current feedback; 0 to +10 volts dc, 1 volt per 100 amperes. |
| *The remaining pins are not used. | | |

## 3-8. Removing Safety Collar And Adjusting Boom




1 Locking Knob

Tighten knob to prevent boom movement. Loosen knob to allow boom movement. Change knob position to limit upward movement.

Pull boom down slightly and remove safety collar. Boom should balance in any position from horizontal to 60 degrees above horizontal. If necessary, adjust boom as follows:

2 Threaded Rod

3 Jam Nut

Loosen jam nut and turn threaded rod until boom balances. Tighten jam nut. Be sure several full threads are through yoke to prevent boom falling.

4 Yoke

Retain safety collar for use in disassembling or moving boom.

Tools Needed:

1-1/8 in

Ref. ST-152 380-A

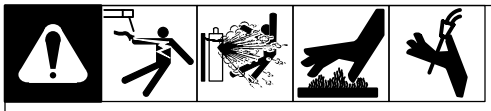
## 3-9. Gun Recommendation Table

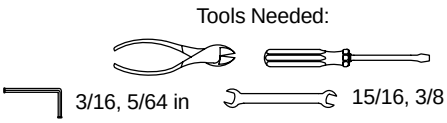
| Process | Gun |
|---|---|
| GMAW – Hard or Cored Wires | M25, M40, GA-50C, GW-500, Or GW-600 |
| FCAW – Self-Shielding Wires | GA-40GL Or GA-50GL |

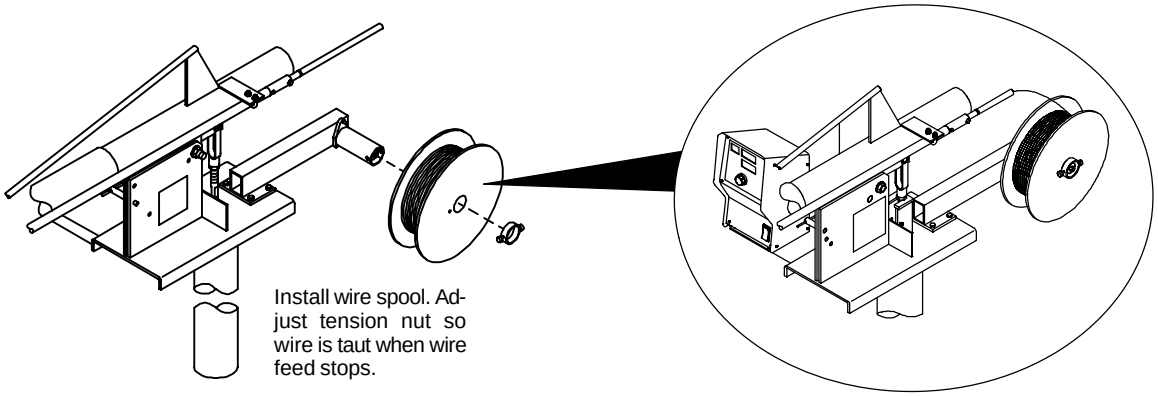
## 3-10. Wire Type, Size, And Feed Speed Capability Table

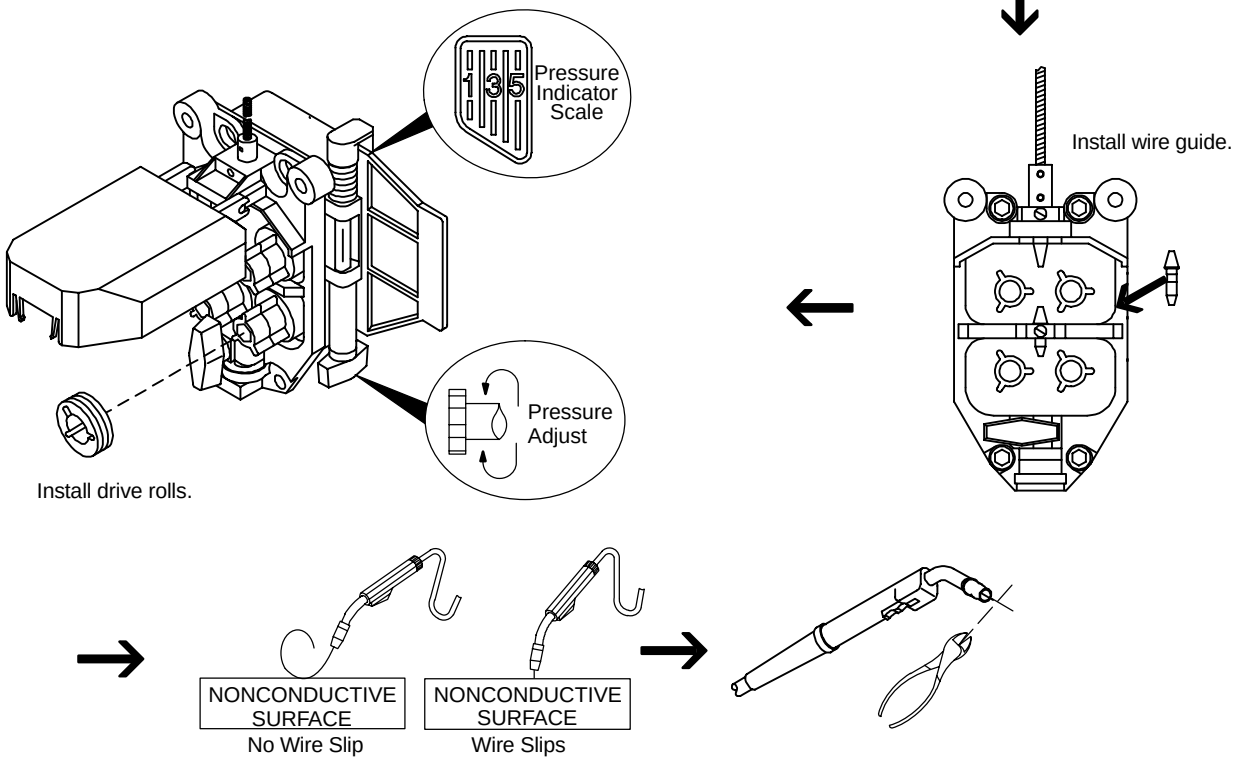
| Motor Speed | Wire Type | Wire Size | Feed Speed Capability |
|---|---|---|---|
| Standard | All | .023 To 5/64 in (0.6 To 2 mm) | 50 To 780 ipm (1.3 To 19.8 mpm) |
| Standard | All | 3/32 To 7/64 in (2.4 To 2.8 mm) | 50 To 700 ipm (1.3 To 17.8 mpm) |
| Standard | All | 1/8 in (3.2 mm) | 50 To 300 ipm (1.3 To 7.6 mpm) |
| Optional High Speed | All | .023 To 5/64 in (0.6 To 2 mm) | 92 To 1440 ipm (2.3 To 35.6 mpm) |

## 3-11. Installing And Threading Welding Wire






☞ *Be sure that outlet cable has proper size liner for the welding wire size. When installing gun, position liner extending from outlet wire guide as close as possible to drive rolls without touching.*

Install gun. Lay gun cable out straight. Cut off end of wire. Push wire through guides up to drive rolls; continue to hold wire. Press Jog button to feed wire out gun.

☞ *For soft wire or small diameter stainless steel wire, use 2 drive rolls and set drive roll pressure from 0 to a maximum of 4 on the pressure indicator scale (so that only the inner spring is compressed). This setting will generally give the best performance for these types of wires.*

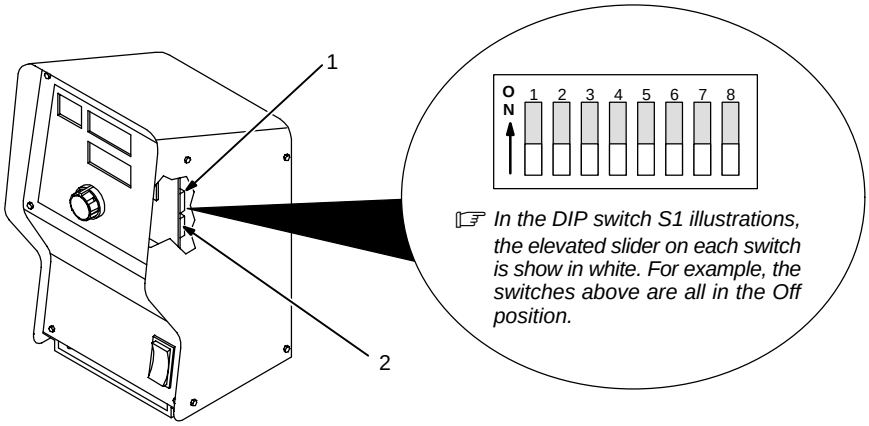
To adjust drive roll pressure, hold nozzle about 2 in (51 mm) from nonconductive surface and press gun trigger to feed wire against surface. Tighten knob so wire does not slip. Do not overtighten. If contact tip is completely blocked, wire should slip at the feeder (see pressure adjustment above).

Cut wire off. Close cover.

Repeat for other side.

152 648-A / 802 865 / 142 597-A / Ref. 137 391-A / Ref. S-0627-A

## 3-12. Setting Internal DIP Switches




☞ *In the DIP switch S1 illustrations, the elevated slider on each switch is show in white. For example, the switches above are all in the Off position.*

Ref. 802 866

**Position Settings And Results For DIP Switch S1**

| | | | |
|---|---|---|---|
| 1 On = Front panel display shows weld amperage during welding. | 2 On = Front panel display shows wire feed speed in meters per minute. | 3 4 3 Off, 4 Off = Range limiting disabled (locks Off). | 3 4 3 On, 4 Off = Range limit on voltage and wire feed speed set at ±5%. |
| 1 Off = Front panel display shows wire feed speed during welding. | 2 Off = Front panel display shows wire feed speed in inches per minute. | 3 4 3 Off, 4 On = Range limit on voltage and wire feed speed set at ±10%. | 3 4 3 On, 4 On = Range limit on voltage and wire feed speed set at ±20%. |
| 5 On = Front panel display holds weld parameters for 5 seconds following trigger release. | 6 On = Current detect override. For welding power sources that don't provide current feedback through the 14-pin receptacle. | 7 8 7 Off, 8 Off = Normal speed motor (50–780 inches per minute) | 7 8 7 On, 8 Off = Reserved for future use. |
| 5 Off = Front panel display returns to preset upon trigger release. | 6 Off = Current must be detected to go from run-in to welding condition. | 7 8 7 Off, 8 On = High speed motor (90–1440 inches per minute) | 7 8 7 On, 8 On = Reserved for future use. |

☞ *When DIP switch positions are changed, the unit must be turned Off and then On again in order for the new settings to be active. DIP switches are only read on power up.*

1 DIP Switch S1

2 DIP Switch S4 (Not For Customer Use)

DIP switch S1 allows the user to make a number of choices affecting unit operation.

- **Selecting Weld Amperage Or Wire Feed Speed Display (S1-1)**

If the front panel DIP is set in the display amps position, the lower display (see Section 4-6) shows amperage while the unit is welding at an amperage value above 25 Amps and the current detect override is in the Off position. If the amperage display position is not used, the lower display shows wire speed.

- **Selecting Wire Feed Speed Value (S1-2)**

The unit displays wire speed in units of inches per minute (IPM) if the English/Metric wire feed display DIP is in the English position. The unit displays wire speed in meters per minute (MPM) if the DIP is in the metric position.

- **Adjusting Range Limits (S1-3 & 4)**

The lock feature provides a means of regulating unit settings, but still allows some level of adjustment through the Adjust control. When a lock position is used, the lock applies to all programs. Two DIP switches are dedicated to locking unit settings. Four possible combinations of the two DIP switches provide the following settings: Locks Off, Locks On ±5%, Locks On ±10%, and finally Locks On ±20%.

If the wire speed is at 300 IPM when the lock DIP is activated, and the lock range is set at ±10%, the operator would have an adjustment range from 270 to 330 IPM.

Trigger Hold and Dual Schedule function normally when locks are enabled.

- **Setting Display Hold Feature (S1-5)**

If the display hold DIP is in the "Hold On" position, the unit will hold the last weld information for 5 seconds following weld termination. If any front panel push button is pressed, or if the Adjust control is activated, the display hold feature is terminated.

- **Setting Current Detect Override (S1-6)**

Current detect override is used to disable run-in when a welding power source is used that doesn't provide current feedback through the 14-pin receptacle.

- **Defining Motor Speed (S1-7 & 8)**

Switches 7 and 8 allow the user to define whether the motor in use is normal speed (50–780 inches per minute) or high speed (90–1440 inches per minute).

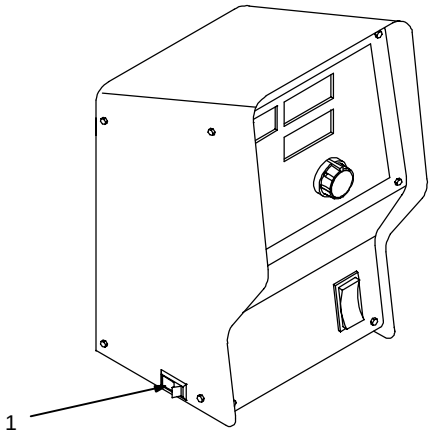
# SECTION 4 – OPERATION

## 4-1. Operational Terms

The following is a list of terms and their definitions as they apply to this wire feeder:

| | |
|---|---|
| **General Terms:** | |
| **Cold Wire Jog** | Feeding wire without contactor or gas valve being energized. |
| **Sequence** | A portion of the weld program, such as preflow, run-in, start, weld, crater, burnback, and postflow. |
| **Weld Program** | A group of sequences that make up a weld cycle. |

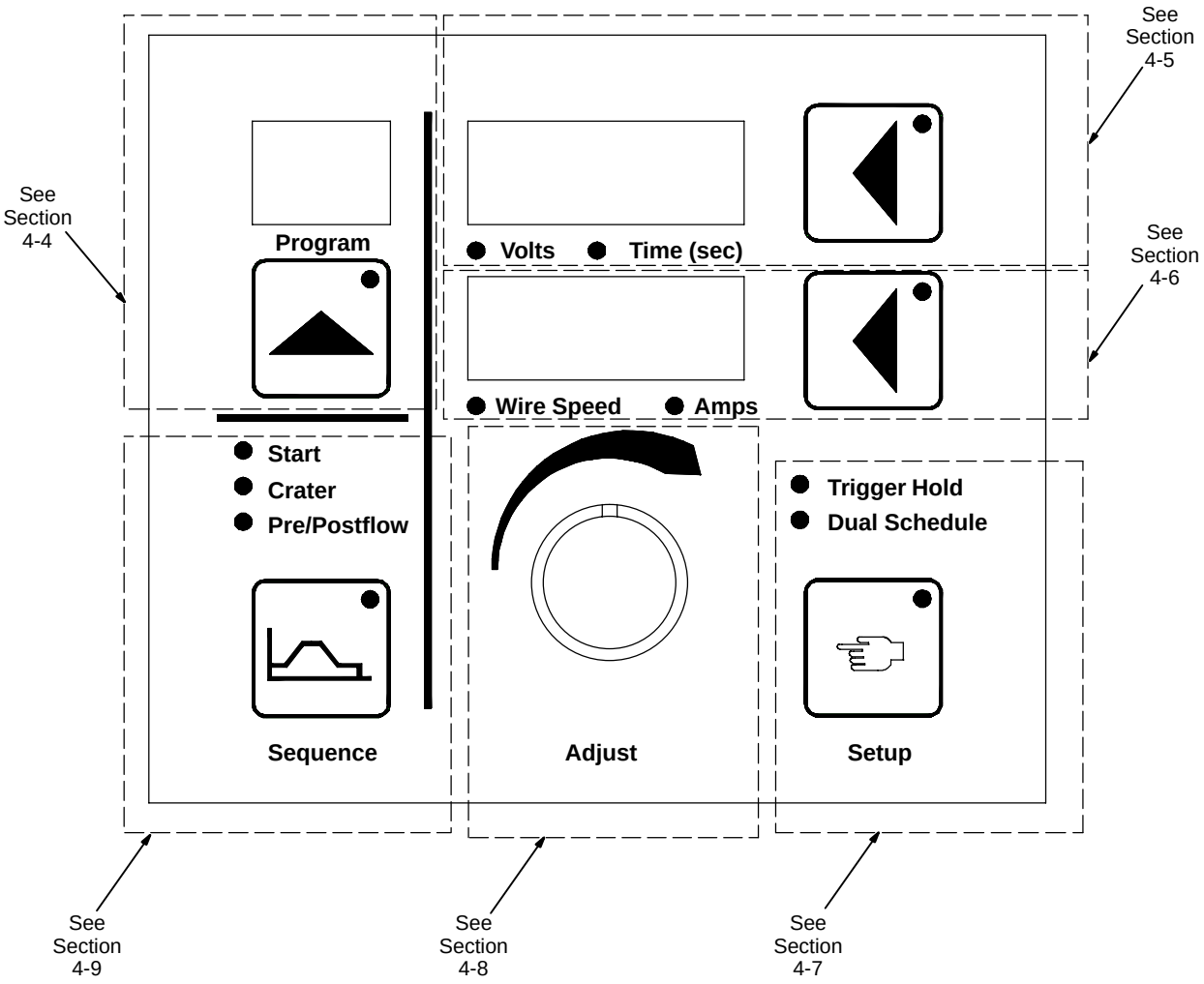
## 4-2. Power Switch



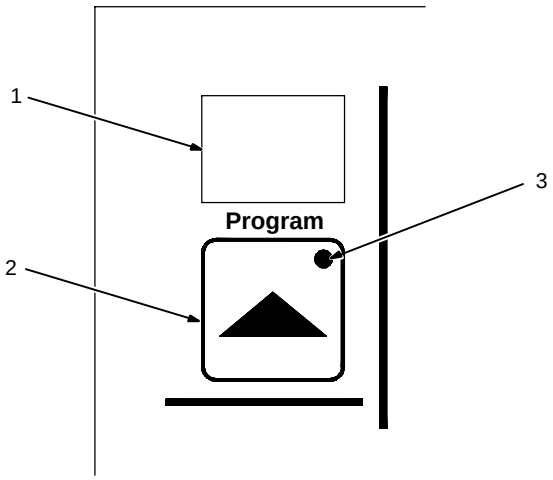

1 Power Switch

802 809

## 4-3. Front Panel Controls




## 4-4. Program Push Button




1 Program Display

The number of the active program is displayed.

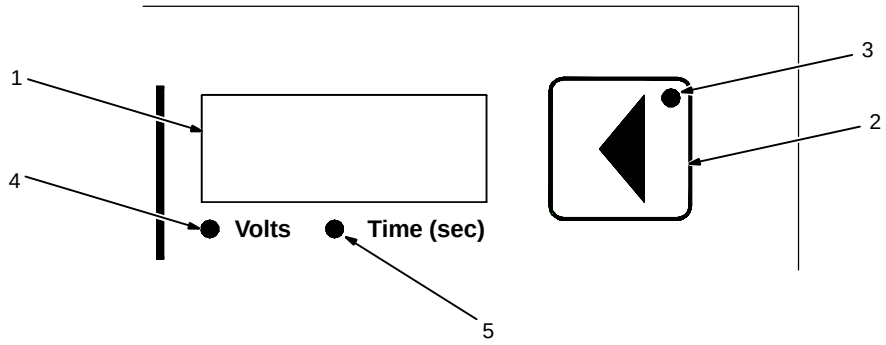
2 Program Push Button

Press button to activate program select feature. To change the program number, press the Program push button and rotate the Adjust control.

3 Program Push Button LED

The LED lights to indicate the Program push button is active.

## 4-5. Upper Display




1 Upper Display

The upper display shows voltage or time. The unit displays both preset and actual arc voltage. When the unit is in a welding state, actual arc voltage is displayed. The upper display shows welding sequence time when the Time LED is illuminated.

2 Upper Display Push Button

Press button to choose between voltage or time functions.

3 Upper Display Push Button LED

The upper display push button LED illuminates to indicate that information displayed can be changed by the Adjust control.

4 Volts LED

5 Time LED

The LEDs below the display illuminate to indicate which value is being shown.

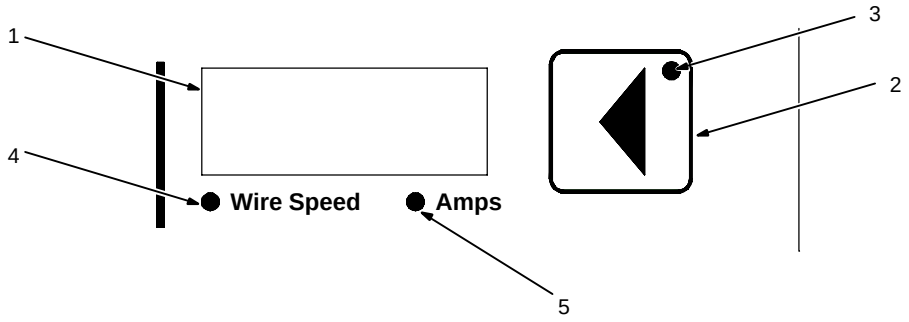
At any time while welding, the unit permits the adjustment of the weld sequence voltage and overrides the display of actual arc voltage. If the current detect override is in the On position, the unit displays preset voltage while welding instead of actual arc voltage. Preset voltage is defined as the desired arc voltage commanded to the welding power source.

If the unit is displaying a welding sequence that can be timed, the welding time display mode is entered by pressing the upper display push button repeatedly until welding time is the active parameter in the upper display. At idle, the upper display toggles between showing weld voltage or weld time, with subsequent presses of the upper display push button.

The unit defaults to displaying welding voltage when a welding sequence display mode is first entered. When the unit is in a welding state, the welding time display mode is terminated in place of the voltage display mode.

If the weld sequence has a time set (as in spot time), after the weld program is completed, ERR TRIG will be displayed to indicate the weld program is complete. Release trigger to clear error.

## 4-6. Lower Display




1 Lower Display

The lower display shows wire speed or amperage. The unit displays and adjusts only preset wire speed at idle. When the unit is in a welding state, actual wire speed is displayed for the active welding sequence. If the amps display DIP is set in the display amps position (see Section 3-12), the lower display shows amperage while the unit is welding.

2 Lower Display Push Button

Press button to choose between wire speed or amperage functions.

3 Lower Display Push Button LED

The lower display push button LED illuminates to indicate that information displayed can be changed by the Adjust control.

4 Wire Speed LED

5 Amps LED

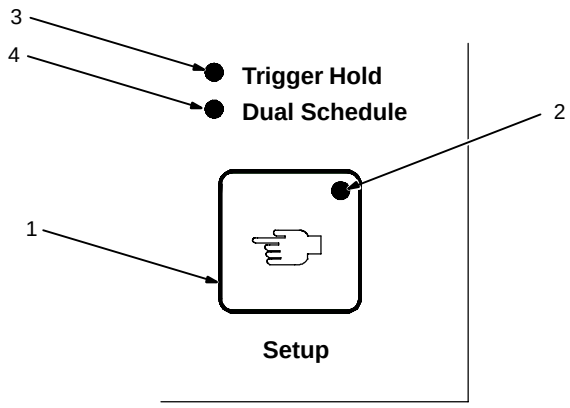
The LEDs below the display illuminate to indicate which value is being shown.

If the unit is in a welding state that does not involve feeding wire, the unit displays the weld sequence wire speed. At any time during welding, the weld sequence wire speed can be adjusted and overrides the preset wire speed display. In other words, if the Adjust control is activated while welding, the unit displays and permits adjustment of the weld sequence wire feed speed regardless of the active welding sequence.

When the unit is displaying amperage, the Amps LED illuminates. Amperage is only displayed if the unit is in a welding state and the amperage is above a minimum value of 25 Amps.

The display will read zero for amperage readings below the amperage threshold, prior to arc initiation. In addition, the amperage display feature is disabled if the current detect override is in the On position (see Section 3-12).

## 4-7. Setup Push Button




1 Setup Push Button

Press button to choose between trigger hold or dual schedule functions.

2 Setup Push Button LED

3 Trigger Hold LED

4 Dual Schedule LED

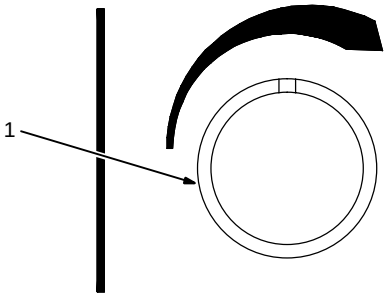
- When the Setup button is pressed, the Setup push button LED illuminates and the Trigger Hold LED flashes.
- The flashing LED indicates that the unit is in the trigger hold display mode. In this mode the upper display indicates HOLD and the lower display indicates the trigger hold status On/Off. Use the Adjust control to change the trigger hold status or press the lower display push button. If trigger hold is turned On, the trigger hold LED illuminates and stays On.

When trigger hold is On, the user must press and hold the trigger for a predefined amount of time (the trigger hold delay time– see Section 4-10), then release it for the trigger hold function to be active. To shut off the weld when trigger hold is On, the user must press and release the trigger.

If a weld time is programmed, trigger hold is disabled.

- When the Setup button is pressed a second time, the dual schedule LED flashes. In this mode the upper display indicates DUAL and the lower display indicates dual schedule status On/Off. Use the Adjust control to change the dual schedule status if desired.
- Pressing the Setup button again exits the Setup mode. The dual schedule LED stops flashing to indicate the dual schedule status is Off.
- While in the Setup mode, the active program can be adjusted without deactivating the trigger hold Setup mode operation. If the trigger is activated, Setup mode(s) is terminated.

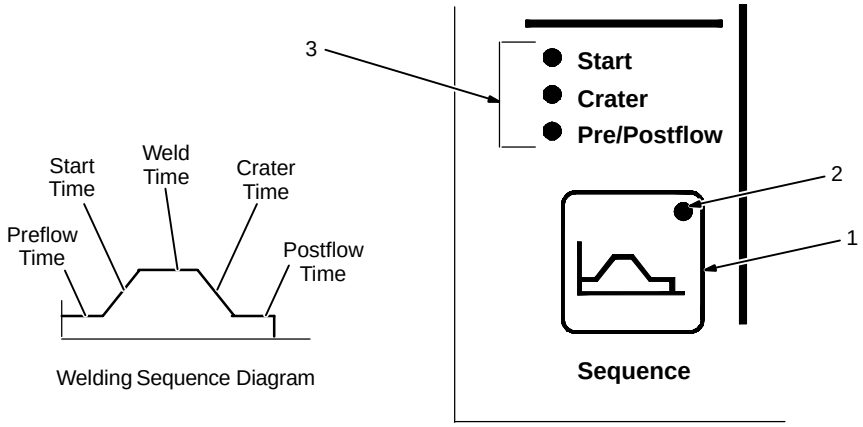
## 4-8. Adjust Control




1 Adjust Control

The Adjust control is used to change various sequence parameters, and to select various sequences. Refer to the section for the function in question for information related to using the Adjust control.

## 4-9. Sequence Push Button




1 Sequence Push Button

2 Sequence Push Button LED

3 Welding Sequence LEDs

The Sequence push button allows the selection of welding sequences. Five welding sequences are available. The default sequence is the Weld sequence. The Weld sequence is active on power up, and is indicated when no welding sequence LEDs are illuminated. Three welding sequence LEDs are located above the Sequence push button: Start, Crater, and Preflow/Postflow. The applicable LED illuminates to indicate which welding sequence is active.

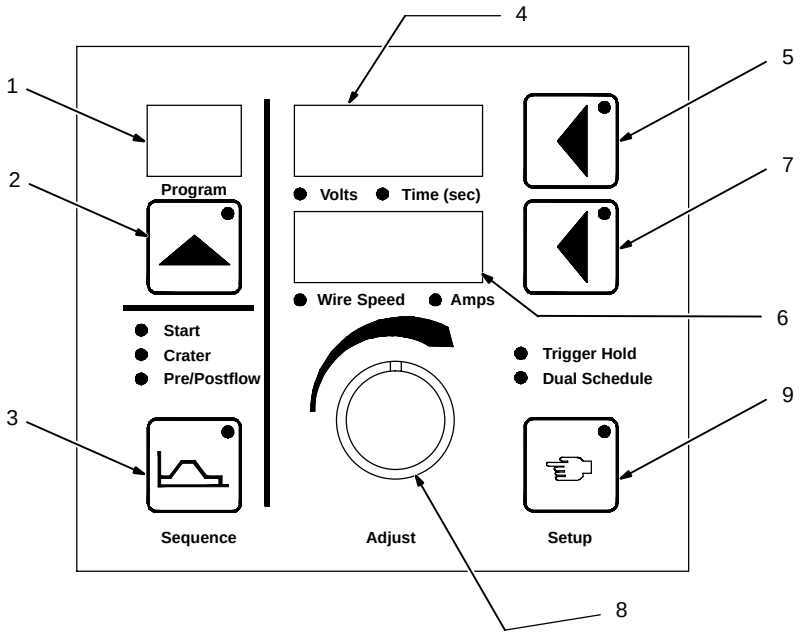
- The LED illuminates to indicate that a welding sequence display mode other than Weld is activate. Welding sequences other than Weld must be set prior to initiating the arc. When the unit enters a welding state, all sequence display modes are terminated and the weld display mode is activated.

  If zero time is programmed for a timed sequence except for Weld, that sequence will be skipped.
- In the weld sequence display mode the Sequence push button LED is Off , and all other sequence LEDs are Off. When the Sequence push button is pressed, the Sequence push button and the Start LEDs illuminate. In this condition, the unit is in the Start sequence display mode, and Start sequence parameters are shown in the displays.
- When the Sequence push button is pressed a second time, the Start sequence LED goes Off and the Crater sequence LED illuminates. The Sequence push button LED remains illuminated. In this condition, the unit is in the Crater sequence display mode, and Crater sequence parameters are shown in the displays.
- When the Sequence push button is pressed a third time, the Crater sequence LED goes Off and the Preflow/Postflow sequence LED illuminates. The Sequence push button LED remains illuminated. In the Preflow display mode the upper display shows the preflow time and the lower display indicates the abbreviation PRE, to inform the operator that preflow time is displayed. If the upper display push button is pressed, the Adjust control can be used to adjust preflow.

If the lower display push button is pressed, the Adjust control can be used to select between preflow PRE and postflow POST. When POST is selected, the upper display can be used to specify postflow time.

- When the Sequence push button is pressed a fourth time, all sequence LEDs and the Sequence push button LED go off and the unit returns to the welding sequence display mode.

## 4-10. Auxiliary Menus




1 Program Display
2 Program Push Button
3 Sequence Push Button
4 Upper Display
5 Upper Display Push Button
6 Lower Display
7 Lower Display Push Button
8 Adjust Control
9 Setup Push Button

**Auxiliary Menu**

- An auxiliary menu is provided if both the Sequence and Setup push buttons are pressed simultaneously. The Setup push button LED flashes when the auxiliary menu is displayed.

☞ *The auxiliary menu may be exited at any time by pressing both the Sequence push button and the Setup push buttons simultaneously.*

- The Setup push button is used to step through menu selections. The Manual override run-in wire speed selection is indicated by the upper display of "RUNI", and the lower display indicates the run-in wire speed setting of the active program. The Adjust control is used to set the desired run-in wire speed.

The lower display shows "AUTO" to indicate that automatic run-in is active. The Adjust control can be used to change the setting from "AUTO" to a run-in wire speed setting (50–780). The active program is displayed in the Program display. The active program can be changed by pressing the Program push button, then selecting the desired program with the Adjust control.

Run-in settings are program specific. For example, program 1 can be set at 50 IPM run-in, and program 2 can remain on the Automatic setting. When the unit is set for Automatic, run-in wire speed is set automatically to one-half weld sequence wire speed.

- If the Setup push button is pressed, the unit allows burnback time to be set.

Burnback time and voltage can be specified when the lower display indicates "BURN" and the upper display indicates the burnback time or voltage. The Adjust control is used to set the desired burnback time or voltage. Burnback settings, like run-in settings, are program specific. The active program is displayed in the Program display and can be adjusted (see Section 4-4).

- If the Setup push button is pressed, the unit allows the setting of the manual override power source min and max voltage preset range. The minimum voltage is displayed in the upper display and the lower display indicates "VMIN". When the Setup push button is pressed the unit displays the maximum voltage setting of the welding power source. The maximum voltage is displayed in the upper display and the lower display indicates "VMAX".

In both cases, the Adjust control is used to specify the minimum and maximum voltage settings of the welding power source. The settings correspond to arc voltage obtained at minimum command and arc voltage obtained at maximum command.

- If the Setup push button is pressed, the unit displays arc time in hours.

Arc time is indicated by the Program display showing "HR". Arc time is shown in the lower display.

- If the Setup push button is pressed, the unit displays the number of cycles.

Arc cycles are indicated by the Program display showing "CL". The arc cycle count is shown in the lower display.

- If the Setup push button is pressed, the unit allows trigger hold delay time to be set.

Trigger hold delay time is indicated by "HOLD" in the lower display and the hold delay time in the upper display. The adjust control can be used to specify a new delay time for trigger hold. Trigger hold delay time is the minimum amount of time the trigger must be held for trigger hold to work when the trigger is released (the trigger hold function must be on). For example, if a trigger hold delay time of 2.0 seconds is defined, the operator must hold the trigger for at least 2 seconds before releasing it in order for the trigger hold function to work. Once the trigger hold function is in effect, the wire feeder will stay On until the trigger is pressed and released again.

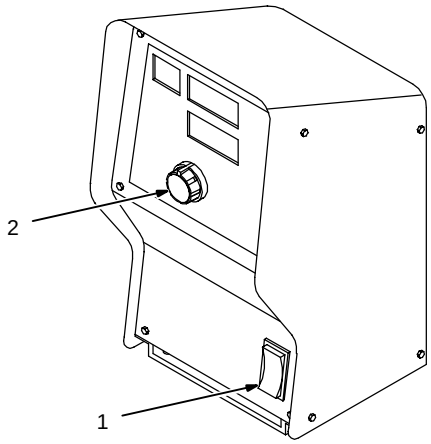
There is an additional function built in called "maximum trigger hold time" which is the maximum length of time the trigger can be held and the trigger hold function still work when the trigger is released (the trigger hold function must be on). The maximum trigger hold time is set at 4.0 seconds after the trigger hold delay time. For example, if a trigger hold delay time of 2.0 seconds is defined, and the operator held the trigger in for more than 6.0 seconds, the trigger hold function would not be in effect and the wire feeder would stop when the trigger is released.

- When the Setup push button is pressed again, the menu repeats to the first menu selection of run-in wire speed selection.

**Reset Menu**

A reset menu is displayed if the following four push buttons are pressed simultaneously: Program, Sequence, upper display, and Setup. The upper display indicates "WIPE" and the lower display prompts the operator with the word "ON" or "OFF". The lower push button is active indicating that the Adjust control can be used to change the unit to "WIPE ON". When "WIPE ON" is set, if the original four push buttons are simultaneously pressed a second time, the unit will reset all settings to factory default except the arc time and arc cycle counts. If a reset is not desired, set the display to "WIPE OFF" and simultaneously press the Program, Sequence, upper display, and Setup push buttons to exit the reset menu.

## 4-11. Jog/Purge




Ref. 802 866

1 Jog/Purge Push Button

2 Adjust Control

The unit provides the ability to jog the wire feeder by means of the gun trigger or the Jog/Purge switch. If the welding arc does not initiate in 3 seconds after the gun trigger is activated, the unit will perform a jog operation for a maximum of two minutes. If the gun trigger is still activated after two minutes, the jog operation is terminated to prevent complete despooling of the wire, in the case of a damaged gun. This function is not available if current detect override is enabled (DIP switch S1-6 is in On position).

The unit displays the “ERR TRIG“ message to inform the operator that the trigger is activated.

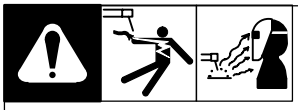
Jog speed can be adjusted by the Adjust control when the unit is jogging wire. The unit displays jog speed when the unit is being jogged.

Jogging can also be accomplished by pressing the Jog/Purge button.

Pressing the Jog/Purge button also allows the operator to purge gas lines before welding and to preset gas pressure at the regulator.

# SECTION 5 – SETTING SEQUENCE PARAMETERS

## 5-1. Sequence Parameters In A Program

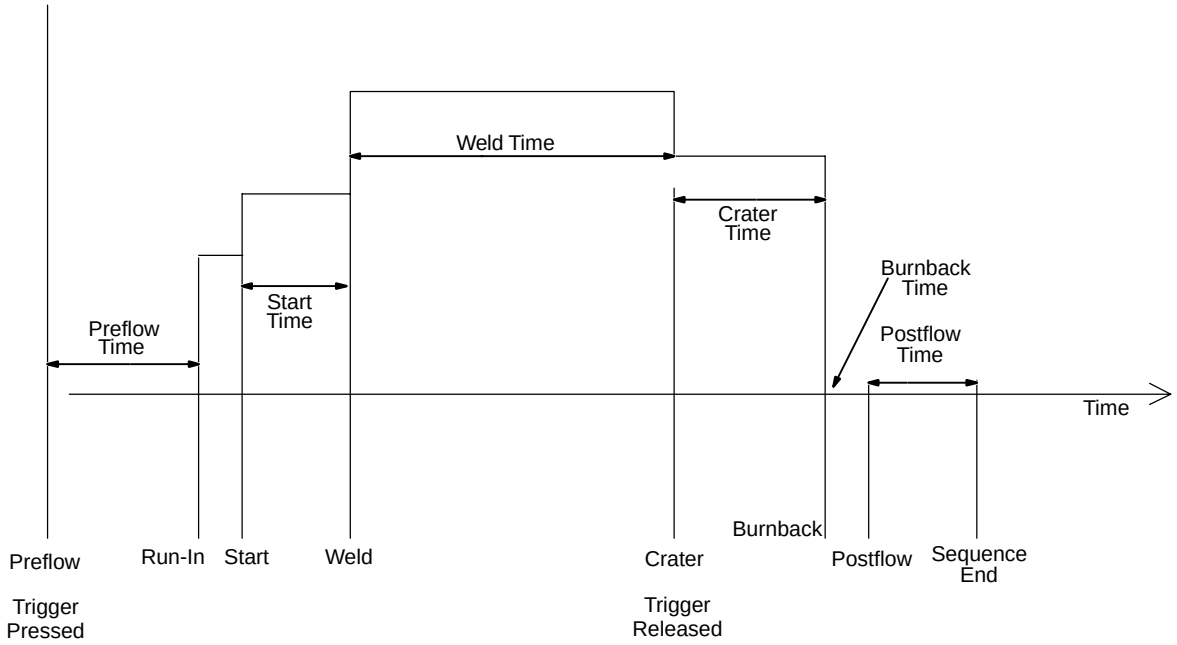


If time is set to zero in Weld sequence, welding continues until gun trigger is released.

If time is set to zero in any timed sequence except Weld, the sequence is skipped.

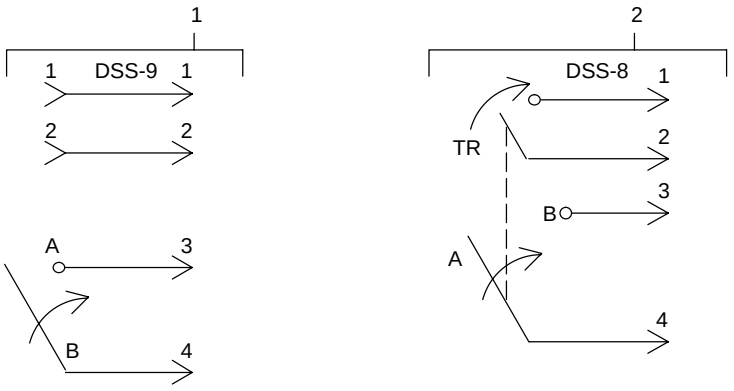
| Sequence | Parameters | | |
|---|---|---|---|
| | Volts | IPM | Seconds |
| 1. Preflow | | | 0-9.9 |
| 2. Run-In | | X | |
| 3. Start | X | X | 0.00-5.00 |
| 4. Weld | X | X | 0-100.0 |
| 5. Crater | X | X | 0-5.00 |
| 6. Burnback | X | | 0-0.25 |
| 7. Postflow | | | 0-9.9 |

X = Setting available.



# SECTION 6 – SETTING DUAL SCHEDULE PARAMETERS

## 6-1. Optional Dual Schedule Switch Diagrams

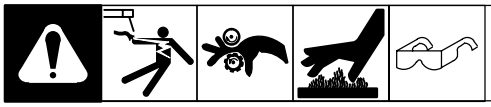



1 Maint 2P (Maintained-Contact 2-Pole Switch)

2 Maint 1P (Maintained-Contact 1-Pole Switch)

# SECTION 7 – MAINTENANCE

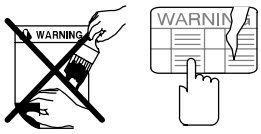
## 7-1. Routine Maintenance



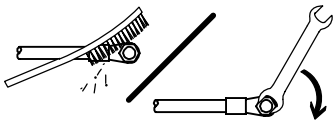
▲ **Disconnect power before maintaining.**

**3 Months**

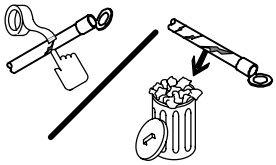
Replace unreadable labels.



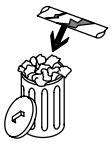

Clean and tighten weld terminals.



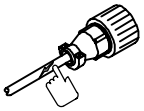
Repair or replace cracked weld cable.



Replace cracked parts.

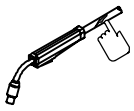


Check 14-pin cord.



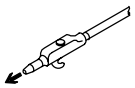
Check gas hose and fittings.

Check gun cable.

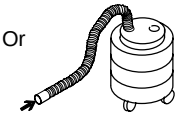


**6 Months**

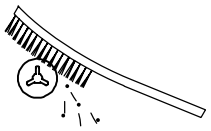
Blow out or vacuum inside. During heavy service, clean monthly.



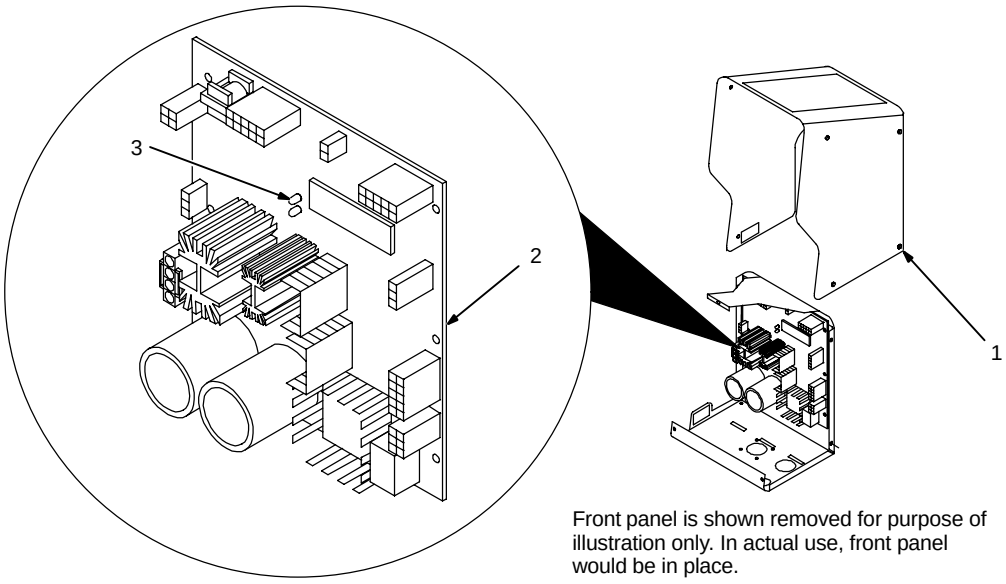
Or



Clean drive rolls.



## 7-2. Diagnostics




Front panel is shown removed for purpose of illustration only. In actual use, front panel would be in place.

Ref. 802 687

☞ *There is a two-position DIP switch S1 located on motor control board PC1. These switches are factory-set in the Off position and must remain in that position for the unit to operate correctly.*

The following error messages are shown on the upper and lower displays to indicate specific errors. Explanations are in the text below:

| ERR / COMM | ERR / TRIG | ERR / TACH | ERR / MTR | ERR / GAS | ERR / COOL |
|---|---|---|---|---|---|
| Indicates a communication error. | Indicates a trigger error. | Indicates a tachometer error. | Indicates a motor error. | No gas flow detected. | No coolant flow detected. |

**LED3-Related Error Indications**

1 Wrapper

2 Motor Control Board PC1

3 LED3

Error conditions are indicated by LED3 on PC1. To view LED3, turn Off unit, remove wrapper, and turn unit On. LED3 is most easily observed from the left side of the unit.

The LED blinks in a 2.5 second cycle. The number of blinks in this period indicates the type of error.

The priority of the errors is related to the number of blinks indicating the error. The more blinks, the more severe the error (motor error is top priority). A higher priority error overrides a lower one (if a motor error and a communication error existed, the light would blink four times for the motor error).

Since blink On time and blink Off time are equal in a four-blink cycle, the four–blink sequence appears as a constant blink.

1 blink = Communication Error
2 blinks = Trigger Error
3 blinks = Tach Error
4 blinks = Motor Error

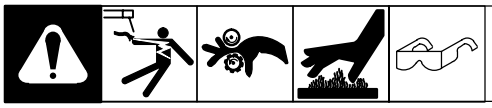
- **The communication error** occurs 2.5 seconds after a loss of communication between the motor and front panel boards. The user may continue to weld with this error. The error may be cleared by resetting the unit (see Section 4-10).
- **The trigger error** occurs if the user has the trigger held for more than two minutes without striking an arc (providing current override is not enabled), or if the user holds the trigger past the postflow phase in a timed weld. This error also occurs if the trigger is held when the feeder is powered up. The error may be cleared by releasing the trigger.
- **The tach error** occurs 2 seconds after the loss of tachometer feedback. The user may continue to weld with this error. The motor speed is regulated through the monitoring of voltage and current.
- **The motor error** indicates that the motor has been drawing too much current for too long. To remedy this, reduce the wire feed speed or the wire feeder torque load/duty cycle.

**Additional Error Messages (Additional hardware required for these to be functional)**

Gas flow error: indicates no gas flow is detected. Connect a gas supply or remedy the problems not allowing gas to flow.

Coolant flow error: indicates no coolant flow is detected. Connect a coolant system or remedy the problems not allowing coolant to flow.

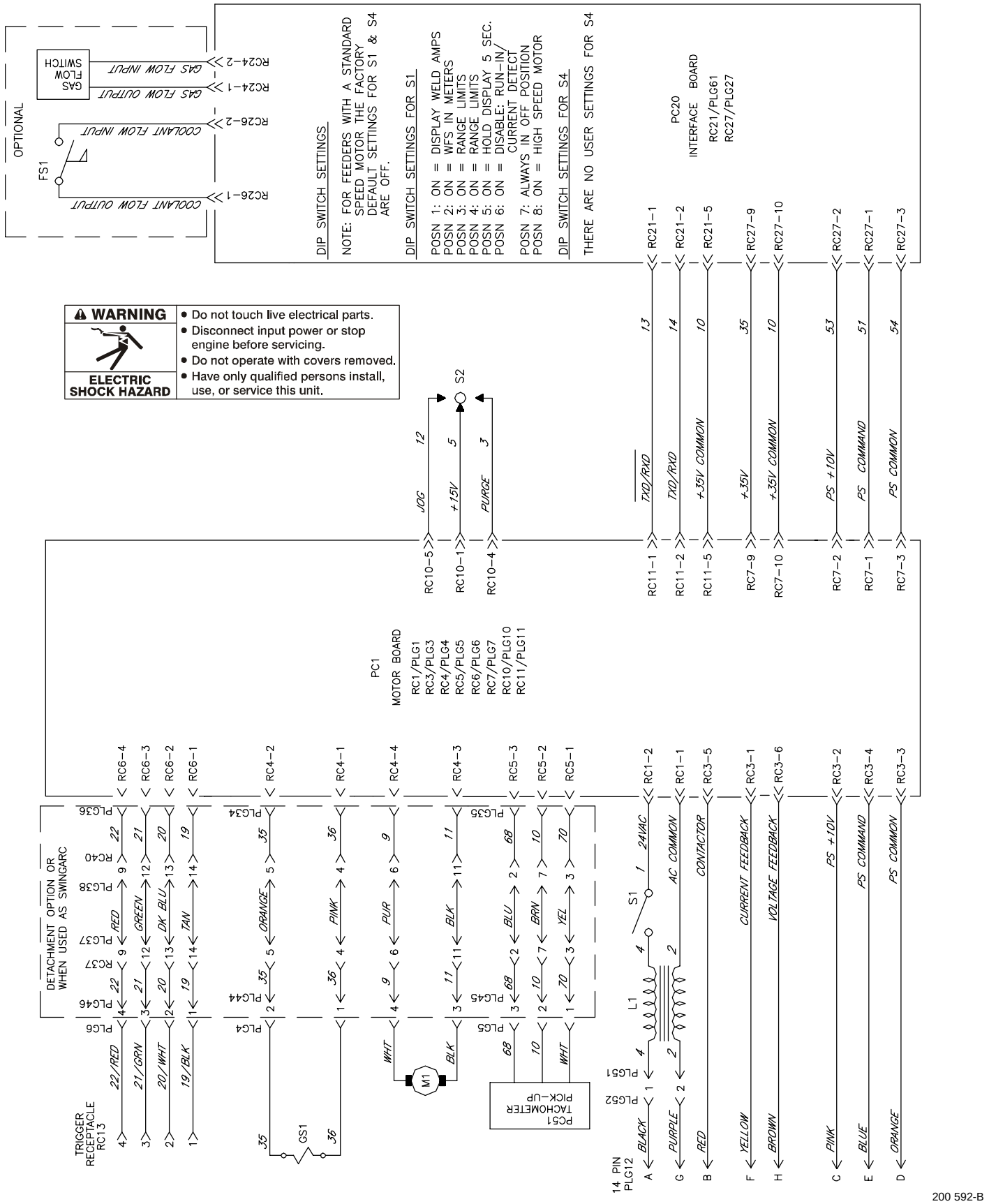
## 7-3. Troubleshooting



▲ **Disconnect power before troubleshooting**

| Trouble | Remedy |
|---|---|
| Wire feeds, shielding gas flows, but electrode wire is not energized. | Check interconnecting cord connections. If secure, check cord for continuity and repair or replace (see Sections 3-5 and 3-6). |
| Wire feeder is on, display does not light up, motor does not run, gas valve and welding power source contactor do not pull in. | Check and reset circuit breaker at welding power source. |
| Electrode wire feeding stops or feeds erratically during welding. | Check gun trigger connection. See gun Owner's Manual. |
| | Check gun trigger. See gun Owner's Manual. |
| | Readjust hub tension and drive roll pressure (see Section 3-11). |
| | Change to correct size drive roll (see Table 9-1). |
| | Clean or replace dirty or worn drive roll. |
| | Incorrect size or worn wire guides. |
| | Replace contact tip or liner. See gun Owner's Manual. |
| | Remove weld spatter or foreign matter from around nozzle opening. |
| | Have Factory Authorized Service Agency check drive motor or motor control board PC1. |
| Motor runs slowly. | Check for correct input voltage. |
| Unit does not switch out of Run-In Speed. | Check if a power source is being used that doesn't provide current feedback through the 14-pin receptacle. If this is the case, use internal DIP switches to set current detect override to On (see Section 3-12). |
| Wire feeder power is on, displays light up, but unit is inoperative. | Check welding gun trigger leads for continuity, and repair leads or replace gun. |

# SECTION 8 – ELECTRICAL DIAGRAM




200 592-B

**Figure 8-1. Circuit Diagram**

☞ *Hardware is common and not available unless listed.*

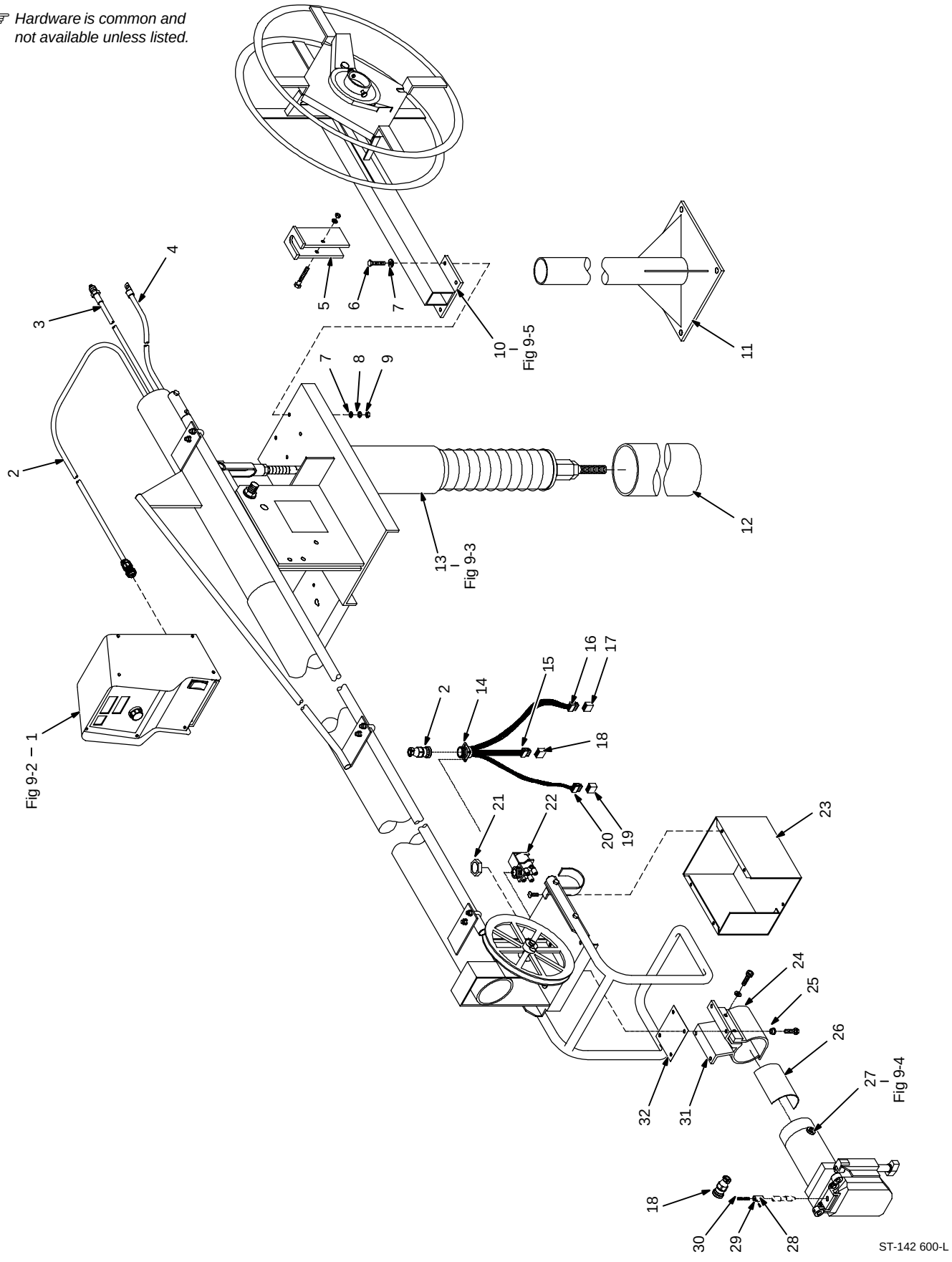



**Figure 9-1. Main Assembly**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity Model 12 | Quantity Model 16 |
|---|---|---|---|---|---|
| | | | **Figure 9-1. Main Assembly** | | |
| 1 | | See Note | CONTROL BOX, (Fig 9-2) | 1 | 1 |
| 2 | | 201 319 | CABLE, interconnecting (consisting of) | 1 | |
| 2 | | 201 320 | CABLE, interconnecting (consisting of) | | 1 |
| | PLG37,38 | 047 636 | CONNECTOR & PINS | 2 | 2 |
| | | 079 739 | CONNECTOR, circ clamp str rlf sz 17.20 | 2 | 2 |
| | | 163 520 | CABLE, port No. 18-14 11/c (order by ft) | 17ft | 21ft |
| 3 | | 139 600 | HOSE, gas | 1 | |
| 3 | | 139 599 | HOSE, gas | | 1 |
| 4 | | 600 324 | CABLE, weld cop strd No. 4/0 (order by ft) | 26ft | 30ft |
| 5 | | 149 884 | BRACKET, spring retaining | 1 | |
| 5 | | 080 947 | BRACKET, spring retaining | | 1 |
| 6 | | 132 053 | SCREW, cap stl hexhd .375-16 x 1.500 lg | 4 | 4 |
| 7 | | 602 243 | WASHER, flat stl std .375 | 8 | 8 |
| 8 | | 602 213 | WASHER, lock stl split .375 | 4 | 4 |
| 9 | | 601 872 | NUT, stl hex full .375-16 | 4 | 4 |
| 10 | | Fig 7-6 | SUPPORT, hub & reel | 1 | 1 |
| 11 | | ♦149 838 | PIPE POST, 4ft w/base or | 1 | |
| 11 | | ♦149 839 | PIPE POST, 6ft w/base | 1 | |
| 11 | | ♦078 264 | PIPE POST, 4ft w/base or | | 1 |
| 11 | | ♦079 216 | PIPE POST, 6ft w/base | | 1 |
| 12 | | ♦075 078 | PIPE POST, 4ft w/o base or | 1 | 1 |
| 12 | | ♦079 217 | PIPE POST, 6ft w/o base | 1 | 1 |
| 13 | | Fig 7-4 | BOOM ASSEMBLY | 1 | 1 |
| 14 | RC37 | 047 637 | CONNECTOR & SOCKETS | 1 | 1 |
| 15 | PLG46 | 115 090 | CONNECTOR & PINS | 1 | 1 |
| 16 | PLG44 | 167 640 | CONNECTOR & PINS & SOCKETS | 1 | 1 |
| 17 | PLG4 | 136 810 | CONNECTOR & SOCKETS | 1 | 1 |
| 18 | | 203 314 | CABLE, trigger (consisting of) | 1 | |
| | RC13 | 080 328 | CONNECTOR w/SOCKETS, free hanging | 1 | 1 |
| | | 079 531 | CONNECTOR, circ clamp str rlf size 11 Amp 206358-2 | 2 | 2 |
| | | 604 571 | CABLE, 18/4 | 2ft | 2ft |
| | PLG6 | 115 094 | CONNECTOR & SOCKETS | 1 | 1 |
| 19 | PLG5 | 131 204 | CONNECTOR & SOCKETS | 1 | 1 |
| 20 | PLG45 | 131 203 | CONNECTOR & SOCKETS | 1 | 1 |
| 21 | | 605 227 | NUT, nyl hex jam .750NPST | 1 | 1 |
| 22 | GS1 | 200 333 | VALVE, 34VDC | | |
| | | 134 834 | HOSE, SAE .187 ID x .410 OD (order by ft) | 2ft | 2ft |
| 23 | | 139 265 | COVER, motor & components | 1 | 1 |
| 24 | | 156 243 | CLAMP, motor top | 1 | 1 |
| 25 | | 159 360 | INSULATOR, screw machine | 4 | 4 |
| 26 | | 145 639 | STRIP, buna N compressed sheet .062 x 4.000sq | 1 | 1 |
| 27 | | 201 773 | DRIVE ASSEMBLY, wire (w/tach) (Fig 9-5) | 1 | 1 |
| 27 | | ♦201 774 | DRIVE ASSEMBLY, wire (high speed w/tach) (Fig 9-5) | 1 | 1 |
| 28 | | 157 295 | GUIDE, monocoil | 1 | 1 |
| 29 | | 604 612 | SCREW, set stl sch 8-32 x .125 cup point | 2 | 2 |
| 30 | | 082 050 | LINER, monocoil inlet wire | 1 | 1 |
| 31 | | 159 646 | CLAMP, motor base | 1 | 1 |
| 32 | | 159 647 | INSULATOR, motor clamp | 1 | 1 |

Note: When ordering Control Box contact factory service department for proper number.

♦OPTIONAL

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

☞ *Hardware is common and not available unless listed.*

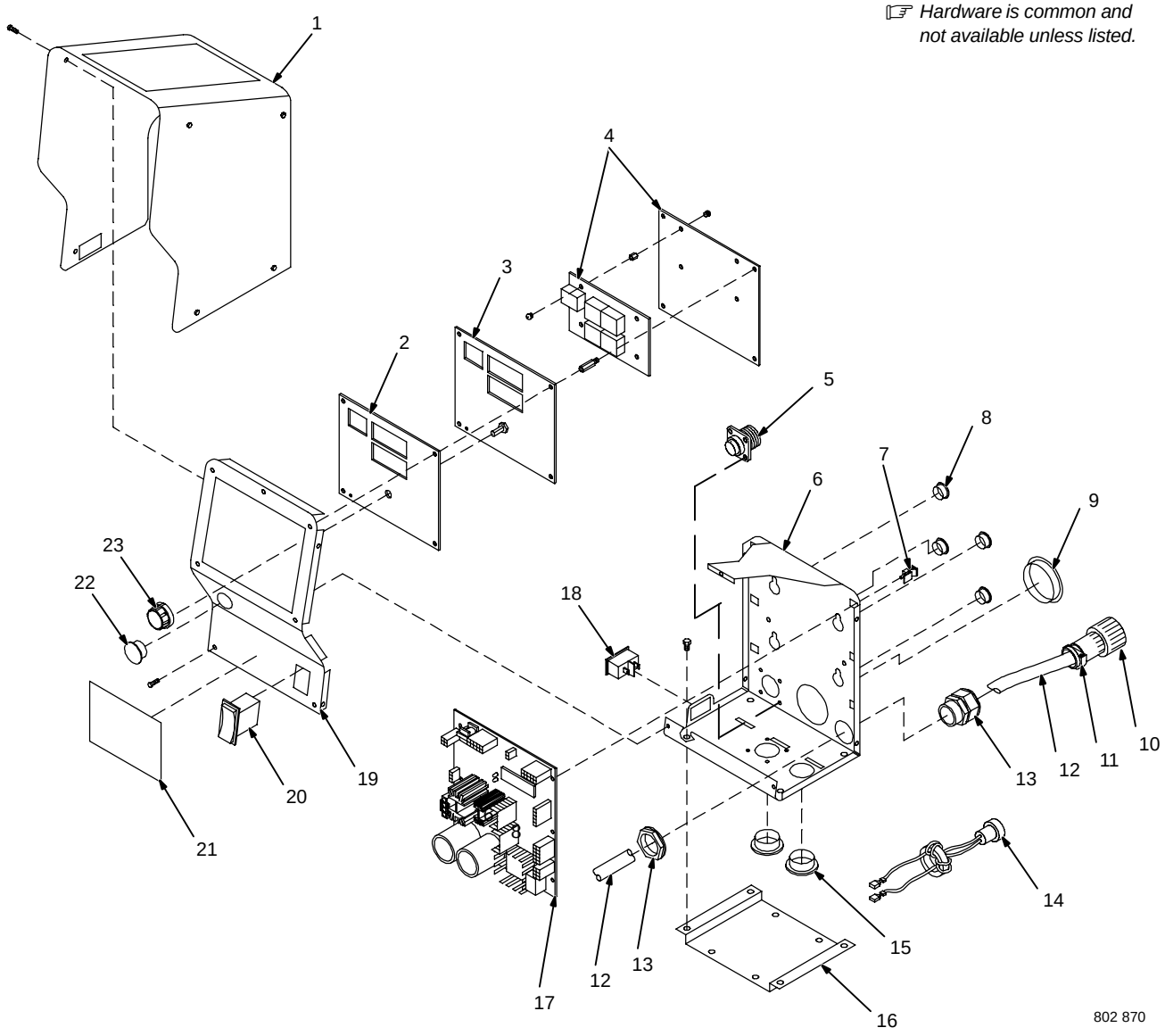



**Figure 9-2. Control Box**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 9-2. Control Box (Figure 9-1 Item 1)** | |
| 1 | | 200 562 | .. WRAPPER, feeder | 1 |
| 2 | | 200 153 | .. OVERLAY, upper front panel | 1 |
| 3 | | 200 693 | .. CIRCUIT CARD ASSY, switches | 1 |
| 4 | | 200 691 | .. PANEL, pc card display/micro | 1 |
| 5 | | 047 637 | .. HOUSING RCPT+SKTS, (service kit) | 1 |
| 6 | | 200 551 | .. ENCLOSURE, control | 1 |
| 7 | | 134 201 | .. STAND–OFF SUPPORT, pc card | 6 |
| 8 | | 024 376 | .. PLUG, 0.625 inch | 4 |
| 9 | | 148 253 | .. BUSHING, snap–in nyl 1.375 id x 1.750 mtg hole | 2 |
| | | 201 228 | .. CABLE, power (consisting of) | 1 |
| 10 | PLG12 | 141 162 | .... HOUSING PLUG+PINS, (service kit) | 1 |
| | PLG52 | 174 823 | .... HOUSING PLUG PINS+SKTS, (service kit) | 1 |
| | PLG3 | 115 093 | .... HOUSING PLUG+SKTS, (service kit) | 1 |
| 11 | | 079 739 | .... CONN, circ cpc clamp str rlf | 1 |
| 12 | | 163 519 | .... CABLE, port | 15.5 ft |
| 13 | | 139 041 | .... STRAIN RELIEF | 1 |
| 14 | | 203 197 | .. INDUCTOR, input | 1 |

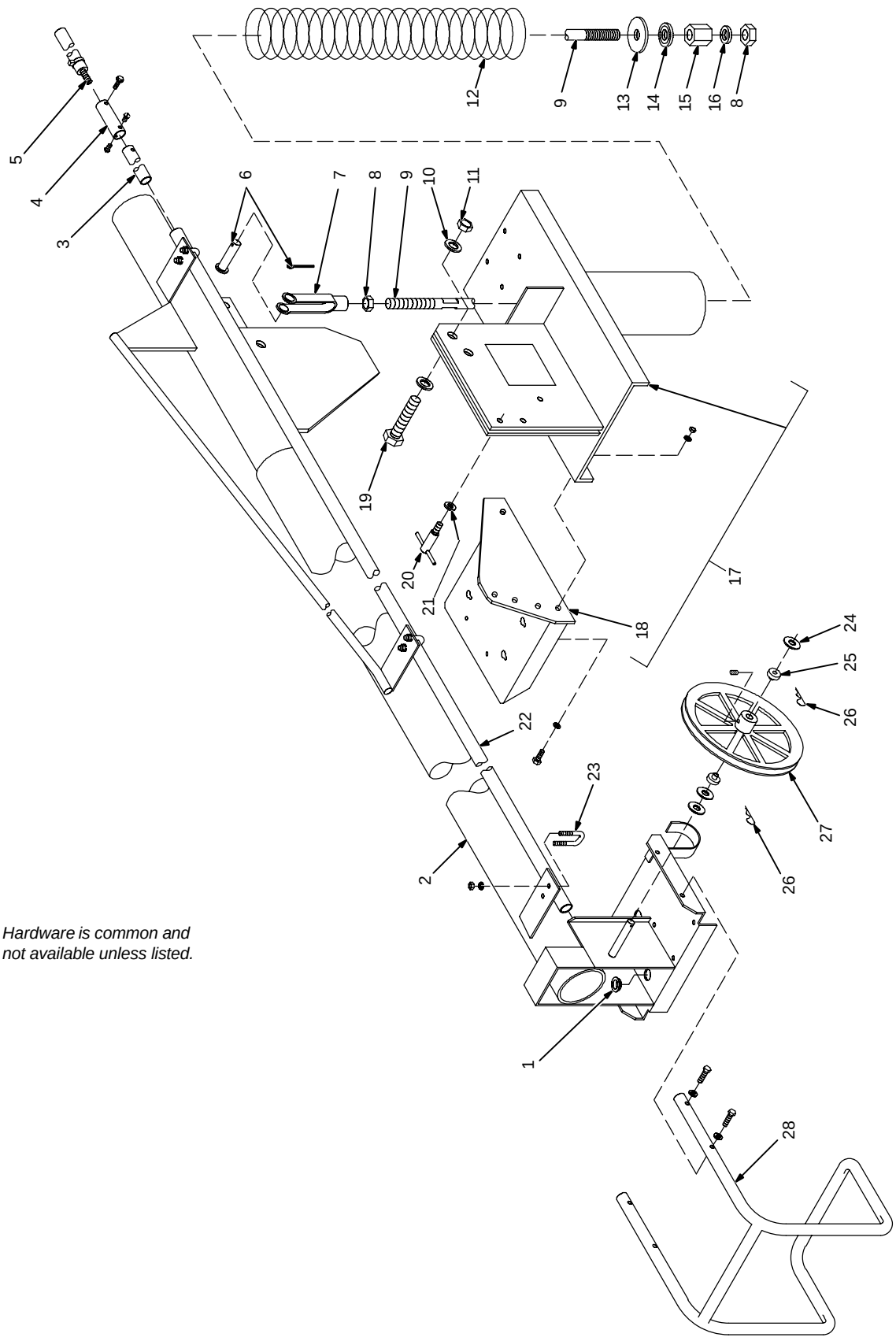
| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|

**Figure 9-2. Control Box (Figure 9-1 Item 1) (Continued)**

| | | | | |
|---|---|---|---|---|
| 15 | | 070 371 | BUSHING, snap–in nyl .937 id x 1.125 mtg hole | 2 |
| 16 | | 200 553 | BRACKET, control box mounting | 1 |
| 17 | PC1 | 201 549 | CIRCUIT CARD ASSY, motor control | 1 |
| 18 | S1 | 111 997 | SWITCH, rocker spst 10A 250 VAC on–off | 1 |
| 19 | | 200 559 | PANEL, front | 1 |
| 20 | S2 | 200 295 | SWITCH, rocker spdt 15A 12V on–off–on | 1 |
| 21 | | 202 587 | NAMEPLATE | 1 |
| 22 | | 000 527 | PLUG, 0.875 inch | 1 |
| 23 | | 179 851 | KNOB, pointer 1.670 dia x .250 id push on w/spring | 1 |
| | PLG5,35 | 131 204 | HOUSING PLUG+SKTS, (service kit) | 1 |
| | PLG44 | 148 389 | HOUSING PLUG PINS+SKTS, (service kit) | 1 |
| | PLG37,38 | 047 636 | HOUSING PLUG+PINS, (service kit) | 1 |
| | RC37,40 | 047 637 | HOUSING PLUG+SKTS, (service kit) | 1 |
| | PLG6,36 | 115 094 | HOUSING PLUG+SKTS, (service kit) | 1 |
| | PLG46 | 115 090 | HOUSING PLUG+PINS, (service kit) | 1 |
| | PLG11,61 | 131 005 | HOUSING PLUG+SKTS, (service kit) | 1 |
| | PLG45 | 131 203 | HOUSING PLUG+PINS, (service kit) | 1 |
| | PLG1 | 202 592 | HOUSING PLUG PINS+SKTS, (service kit) | 1 |
| | PLG51 | 174 824 | HOUSING PLUG PINS+SKTS, (service kit) | 1 |
| | PLG12 | 141 162 | HOUSING PLUG+PINS, (service kit) | 1 |
| | PLG4,34 | 136 810 | HOUSING PLUG PINS+SKTS, (service kit) | 1 |
| | PLG7,27 | 115 091 | HOUSING PLUG+SKTS, (service kit) | 1 |
| | PLG10 | 130 203 | HOUSING PLUG+SKTS, (service kit) | 1 |

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**




☞ *Hardware is common and not available unless listed.*

ST-142 601-F

**Figure 9-3. Boom Assembly**

| Item No. | Part No. | Description | Quantity Model 12 | Quantity Model 16 |
|---|---|---|---|---|
| | | **Figure 9-3. Boom Assembly (Figure 9-1 Item 13)** | | |
| 1 | 000 527 | .. PLUG, 0.875 inch | 1 | 1 |
| 2 | 159 991 | .. BOOM, single | 1 | |
| 2 | 159 989 | .. BOOM, single | | 1 |
| 3 | 079 665 | .. GUIDE, wire | 1 | |
| 3 | 080 811 | .. GUIDE, wire | | 1 |
| 4 | 079 664 | .. GUIDE, wire inlet | 1 | 1 |
| 5 | 139 633 | .. LINER, monocoil 3/32-1/8 wire x 15.687 | 1 | 1 |
| 6 | 073 742 | .. PIN, clevis .750 OD x 2.156 lg | 1 | 1 |
| 7 | 073 741 | .. CLEVIS, .812 yoke 6.062 lg .750-16thd | 1 | 1 |
| 8 | 079 029 | .. NUT, stl hex full fnsh .750-16 | 2 | 2 |
| 9 | 075 462 | .. SHAFT, boom counterbalance | 1 | 1 |
| 10 | 602 250 | .. WASHER, flat stl SAE .750 | 2 | 2 |
| 11 | 079 020 | .. NUT, stl hex elastic stop .750-16 | 1 | 1 |
| 12 | 149 858 | .. SPRING, cprsn 3.750 OD x .625 wire x 36.000 | 1 | |
| 12 | 080 723 | .. SPRING, cprsn 3.750 OD x .687 wire x 33.750 | | 1 |
| 13 | 150 258 | .. RETAINER, spring | 1 | 1 |
| 14 | 024 605 | .. BEARING, ball thr sgl row .750 x 1.625 x .625 | 1 | 1 |
| 15 | 075 101 | .. NUT, stl hex special .750-16 x 1.250 | 1 | 1 |
| 16 | 079 030 | .. WASHER, lock stl ext tooth .750 | 1 | 1 |
| 17 | +174 754 | .. BASE, swivel boom (consisting of) | 1 | 1 |
| | 080 157 | .... FITTING, grease 1/8NPT | 1 | 1 |
| 18 | 174 688 | .... BRACKET, mtg control tilt | 1 | 1 |
| | 142 804 | .. LABEL, Swingarc caution heavy spring | 1 | 1 |
| | 134 327 | .. LABEL, warning general precautionary | 1 | 1 |
| 19 | 073 666 | .. BOLT, mach stl hexhd .750-16 x 2.750 | 1 | 1 |
| 20 | 047 224 | .. KNOB, T-bar .500-13 thd | 1 | 1 |
| 21 | 602 246 | .. WASHER, flat stl std .500 | 1 | 1 |
| 22 | 079 667 | .. PIPE, plstc .500 x 133.750 | 1 | |
| 22 | 080 812 | .. PIPE, plstc .500 x 181.750 | | 1 |
| 23 | 079 632 | .. BOLT, U stl .250-20 x .875 wide x 1.375 deep | 4 | 5 |
| 24 | 602 243 | .. WASHER, flat stl std .375 | 3 | 3 |
| 25 | 079 622 | .. WASHER, shldr .381 ID x .750 OD | 2 | 2 |
| 26 | 010 313 | .. PIN, cotter hair .072 x 1.437 | 2 | 2 |
| 27 | 079 621 | .. PULLEY, V sgl grv | 1 | 1 |
| 28 | 139 336 | .. GUARD, motor protector | 1 | 1 |
| | 149 322 | .. CLAMP, hose .405 – .485clp | 2 | 2 |

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

☞ *Hardware is common and not available unless listed.*

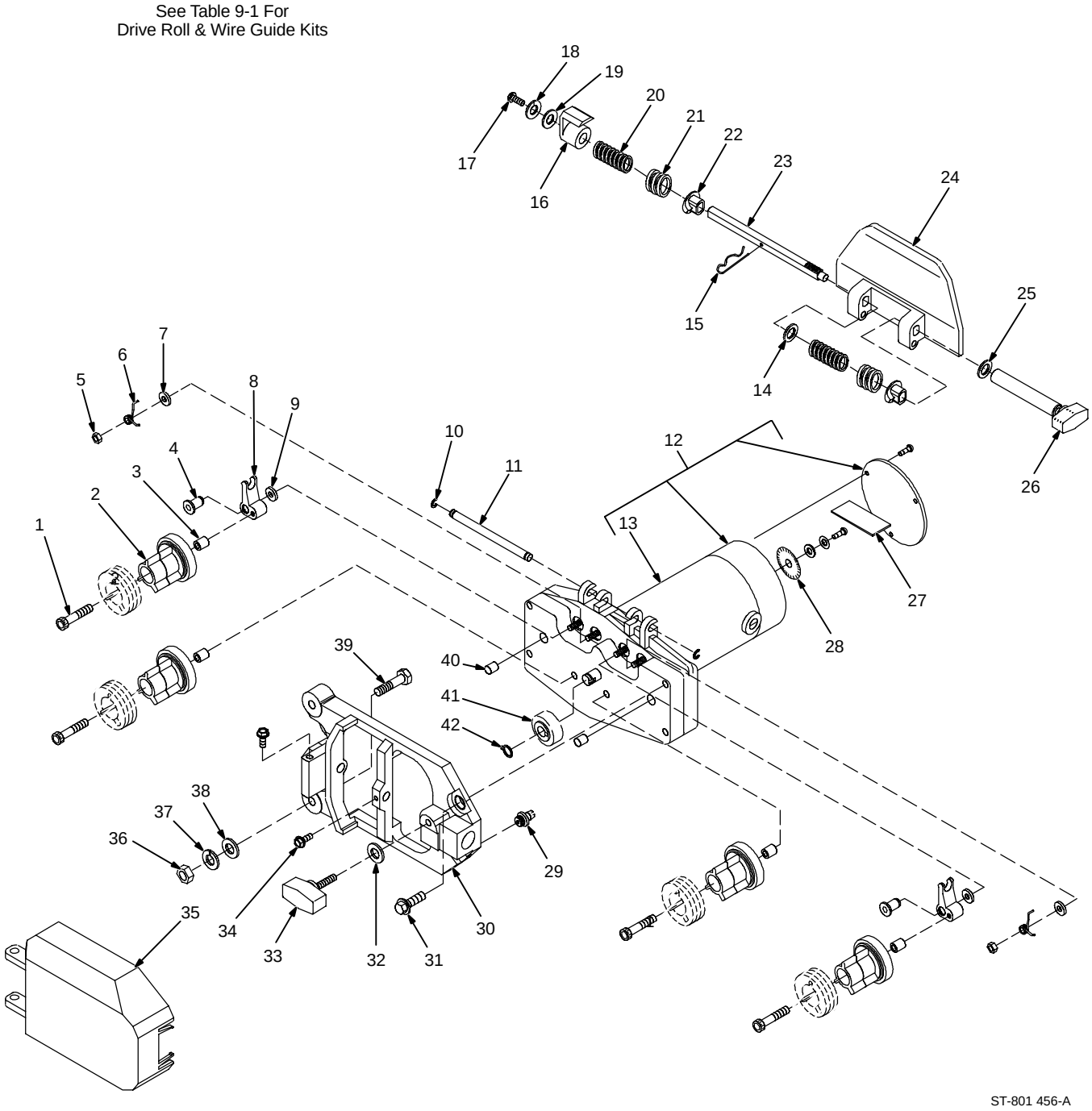



**Figure 9-4. Drive Assembly, Wire**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 9-4. Drive Assembly, Wire (Figure 9-1 Item 27)** | |
| 1 | | 010 668 | SCREW, cap stl sch .250-20 x 1.500 | 4 |
| 2 | | 172 075 | CARRIER, drive roll w/components 24 pitch | 4 |
| 3 | | 149 962 | SPACER, carrier drive roll | 4 |
| 4 | | 149 486 | PIN, rotation arm rocker | 2 |
| 5 | | 163 282 | NUT, .250-28 stl | 2 |
| 6 | | 165 798 | SPRING, pressure arm retaining | 2 |
| 7 | | 165 799 | WASHER, flat .257 ID stl | 2 |
| 8 | | 132 750 | ARM, pressure | 2 |
| 9 | | 150 520 | SPACER, rotation pin | 2 |
| 10 | | 133 493 | RING, retaining ext .250 shaft x .025thk | 2 |
| 11 | | 133 350 | PIN, hinge | 1 |
| 12 | M1 | 201 230 | MOTOR, gear 1/8hp 24VDC standard speed (consisting of) | 1 |
| 12 | M1 | ♦201 231 | MOTOR, gear 1/8hp 24VDC high speed (consisting of) | 1 |
| | | 153 491 | KIT, brush replacement (consisting of) | 1 |
| | | 153 492 | CAP, brush | 2 |
| | | *153 493 | BRUSH, carbon | 2 |
| 13 | | 155 098 | KIT, cover motor gearbox (consisting of) | 1 |
| | | 153 550 | COVER, motor gearbox (consisting of) | 1 |
| | | 155 099 | GASKET, cover | 1 |
| | | 155 100 | SCREW, cover | 5 |
| | | 154 031 | SPACER, locating | 2 |
| | | 133 493 | RING, rtng ext .250 shaft grv x .025thk | 1 |
| | | 184 136 | KIT, brush holder | 1 |
| 14 | | 182 414 | WASHER, flat | 1 |
| 15 | | 182 415 | PIN, cotter hair | 1 |
| 16 | | 137 248 | SPRING, indicator | 1 |
| 17 | | 129 351 | SCREW, hexwhd-slt stl slffmg 8-32 x .500 | 1 |
| 18 | | 602 200 | WASHER, lock stl split No. 8 | 1 |
| 19 | | 604 772 | WASHER, flat stl SAE No. 8 | 1 |
| 20 | | 182 156 | SPRING, cprsn | 2 |
| 21 | | 182 155 | SPRING, cprsn | 1 |
| 22 | | 132 746 | BUSHING, spring | 2 |
| 23 | | 181 522 | SHAFT, spring | 1 |
| 24 | | 132 747 | CARRIER, shaft | 1 |
| 25 | | 133 739 | WASHER, flat .375 ID x .625 OD x .062 | 1 |
| 26 | | 183 330 | KNOB, extension | 1 |
| 27 | PC51 | 201 225 | CIRCUIT CARD, digital tach (consisting of) | 1 |
| | PLG5 | 131 204 | CONNECTOR & SOCKETS | 1 |
| | | 604 311 | GROMMET, rbr .250 ID x .375mtg hole | 1 |
| 28 | | 132 611 | OPTICAL ENCODER DISC | 1 |
| 29 | | 149 959 | FITTING, brs barbed M 3/16tbg x .312-24 | 1 |
| 30 | | 179 265 | ADAPTER, gun/feeder LH | 1 |
| 31 | | 108 940 | SCREW, cap stl hexwhd .250-20 x .750 | 4 |
| 32 | | 604 538 | WASHER, flat stl SAE .312 | 1 |
| 33 | | 151 437 | KNOB, plstc T 1.125 lg x .312-18 x 1.500 bar | 1 |
| 34 | | 128 237 | SCREW, hexwhd-slt stl slffmg 10-32 x .500 | 2 |
| 35 | | +179 263 | COVER, drive roll (consisting of) | 1 |
| | | 178 937 | LABEL, warning electric shock and pinch | 1 |
| 36 | | 601 872 | NUT, stl hex full .375-16 | 1 |
| 37 | | 602 213 | WASHER, lock stl split .375 | 1 |
| 38 | | 602 243 | WASHER, flat stl .375 | 1 |
| 39 | | 601 966 | SCREW, cap stl hexhd .375-16 x 1.250 | 1 |
| 40 | | 167 387 | SPACER, locating | 2 |
| 41 | | 168 825 | DRIVE, pinion 40T 24P .376 bore | 1 |
| 42 | | 133 308 | RING, retaining ext .375 shaft x .025thk | 1 |

♦Part of 194 196 Optional High Speed Motor

*Recommended Spare Parts.

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

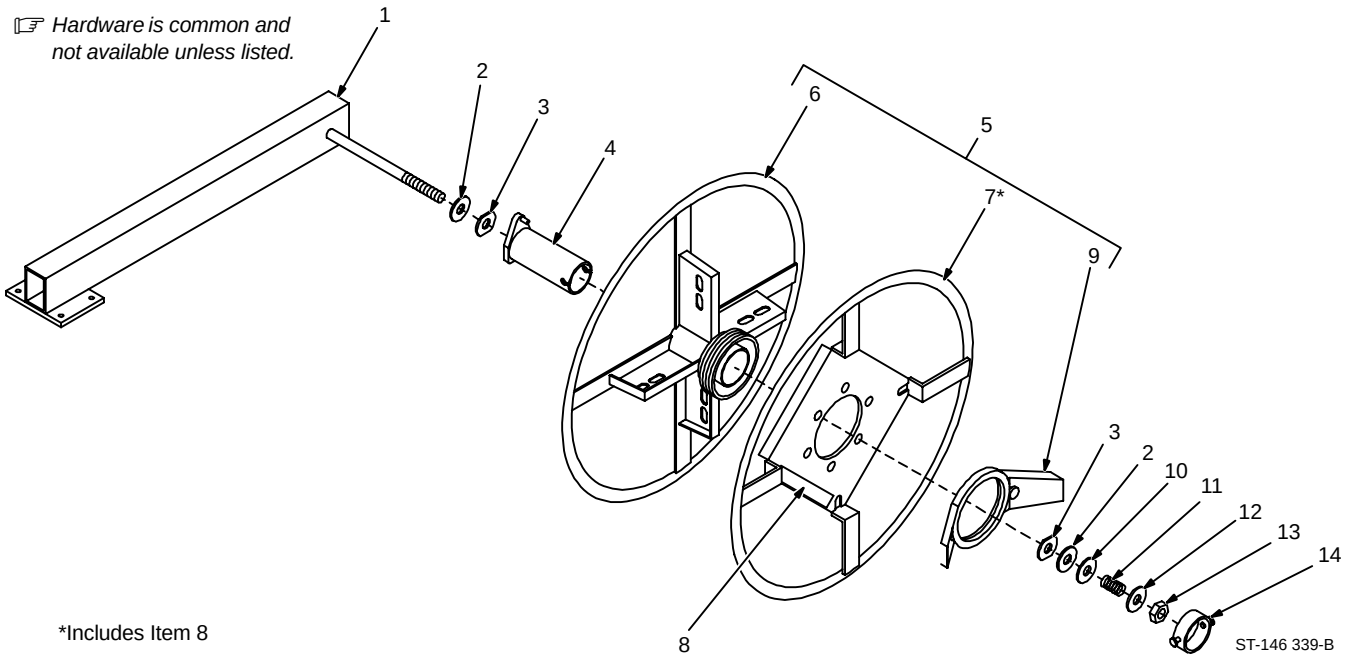



**Figure 9-5. Support, Hub & Reel**

| Item No. | Part No. | Description | Quantity |
|---|---|---|---|

**Figure 9-5. Support, Hub & Reel (Figure 9-1 Item 10)**

| | | | |
|---|---|---|---|
| 1 | 142 399 | SUPPORT, reel | 1 |
| 2 | 010 191 | WASHER, fbr .656 ID x 1.500 OD x .125thk | 2 |
| 3 | 058 628 | WASHER, brake stl | 2 |
| 4 | 058 428 | HUB, spool | 1 |
| 5 | ♦108 008 | REEL, wire 60 lb (consisting of) | 1 |
| 6 | 124 900 | .... SUPPORT, reel spool | 1 |
| 7 | +168 104 | .... RETAINER, spool support (consisting of) | 1 |
| 8 | 166 594 | ..... LABEL, caution falling wire reel can cause damage | 1 |
| 9 | 168 103 | .... NUT, spanner spool support | 1 |
| 10 | 057 971 | WASHER, flat stl keyed 1.500dia x .125thk | 1 |
| 11 | 010 233 | SPRING, cprsn .970 OD x .120 wire x 1.250 | 1 |
| 12 | 605 941 | WASHER, flat stl .640 ID x 1.000 OD x 14ga thk | 1 |
| 13 | 136 684 | NUT, stl slflkg hex reg .625-11 w/nylon insert | 1 |
| 14 | 058 427 | RING, retaining spool | 1 |

♦OPTIONAL
+When ordering a component originally displaying a precautionary label, the label should also be ordered.
**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

## Table 9-1. Drive Roll and Wire Guide Kits

| Wire Size | | Inlet Guide | Intermediate Guide | V-GROOVE | | U-GROOVE | | VK-GROOVE | | UC-GROOVE | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fraction | Metric | | | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll | 4 Roll Kit | Drive Roll |
| .023-.025 in. | 0.6 mm | 150 993 | 149 518 | 151 024 | 087 130 | | | | | | |
| .030 in. | 0.8 mm | 150 993 | 149 518 | 151 025 | 053 695 | | | | | | |
| .035 in. | 0.9 mm | 150 993 | 149 518 | 151 026 | 053 700 | 151 036 | 072 000 | 151 052 | 132 958 | | |
| .040 in. | 1.0 mm | 150 993 | 149 518 | 161 189 | 053 696 | | | | | | |
| .045 in. | 1.1/1.2 mm | 150 994 | 149 519 | 151 027 | 053 697 | 151 037 | 053 701 | 151 053 | 132 957 | 151 070 | 083 489 |
| .052 in. | 1.3/1.4 mm | 150 994 | 149 519 | 151 028 | 053 698 | 151 038 | 053 702 | 151 054 | 132 956 | 151 071 | 083 490 |
| 1/16 in. (.062 in.) | 1.6 mm | 150 995 | 149 520 | 151 029 | 053 699 | 151 039 | 053 706 | 151 055 | 132 955 | 151 072 | 053 708 |
| .068-.072 in. | 1.8 mm | 150 995 | 149 520 | | | | | 151 056 | 132 959 | | |
| 5/64 in. (.079 in.) | 2.0 mm | 150 995 | 149 520 | | | 151 040 | 053 704 | 151 057 | 132 960 | 151 073 | 053 710 |
| 3/32 in. (.094 in.) | 2.4 mm | 150 996 | 149 521 | | | 151 041 | 053 703 | 151 058 | 132 961 | 151 074 | 053 709 |
| 7/64 in. (.110 in.) | 2.8 mm | 150 996 | 149 521 | | | 151 042 | 053 705 | 151 059 | 132 962 | 151 075 | 053 711 |
| 1/8 in. (.125 in.) | 3.2 mm | 150 997 | 149 522 | | | 151 043 | 053 707 | 151 060 | 132 963 | 151 076 | 053 712 |

Each Kit Contains An Inlet Guide, Intermediate Guide, And 045 233 Antiwear Guide With 604 612 Setscrew 8-32 x .125, Along With 4 Drive Rolls.
2 Kits Required For Dual Models.

S-0549-D

# Notes

*Warranty Questions?*

Call
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Miller distributor.

Your distributor also gives you ...

**Service**
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

**Support**
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Miller
*The Power of Blue.*

# TRUE BLUE® WARRANTY

## Effective January 1, 2000
## (Equipment with a serial number preface of "LA" or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY – Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the date that the equipment was delivered to the original retail purchaser, or one year after the equipment is sent to a North American distributor or eighteen months after the equipment is sent to an International distributor.

1. 5 Years Parts – 3 Years Labor
   * Original main power rectifiers
   * Inverters (input and output rectifiers only)
2. 3 Years — Parts and Labor
   * Transformer/Rectifier Power Sources
   * Plasma Arc Cutting Power Sources
   * Semi-Automatic and Automatic Wire Feeders
   * Inverter Power Supplies
   * Intellitig
   * Engine Driven Welding Generators **(NOTE: Engines are warranted separately by the engine manufacturer.)**
3. 1 Year — Parts and Labor
   * DS-2 Wire Feeder
   * Motor Driven Guns (w/exception of Spoolmate 185 & Spoolmate 250)
   * Process Controllers
   * Positioners and Controllers
   * Automatic Motion Devices
   * RFCS Foot Controls
   * Induction Heating Power Sources
   * Water Coolant Systems
   * HF Units
   * Grids
   * Maxstar 140
   * Spot Welders
   * Load Banks
   * Miller Cyclomatic Equipment
   * Running Gear/Trailers
   * Plasma Cutting Torches (except APT & SAF Models)
   * Field Options
     (NOTE: Field options are covered under True Blue® for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
4. 6 Months — Batteries
5. 90 Days — Parts
   * MIG Guns/TIG Torches
   * Induction Heating Coils and Blankets
   * APT, ZIPCUT & PLAZCUT Model Plasma Cutting Torches
   * Remote Controls
   * Accessory Kits
   * Replacement Parts (No labor)
   * Spoolmate 185 & Spoolmate 250
   * Canvas Covers

Miller's True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, slip rings, relays or parts that fail due to normal wear.**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

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# Owner's Record

Please complete and retain with your personal records.

Model Name Serial/Style Number

Purchase Date (Date which equipment was delivered to original customer.)

Distributor

Address

City

State Zip

# For Service

***Call 1-800-4-A-Miller or see our website at www.MillerWelds.com to locate a DISTRIBUTOR or SERVICE AGENCY near you.***

Always provide Model Name and Serial/Style Number.

| | |
|---|---|
| Contact your Distributor for: | Welding Supplies and Consumables |
| | Options and Accessories |
| | Personal Safety Equipment |
| | Service and Repair |
| | Replacement Parts |
| | Training (Schools, Videos, Books) |
| | Technical Manuals (Servicing Information and Parts) |
| | Circuit Diagrams |
| | Welding Process Handbooks |
| Contact the Delivering Carrier for: | File a claim for loss or damage during shipment. |
| For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department. | |

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